



## SEQUENCE LISTING

<110> Lu, Shan  
Shen, Siyuan

<120> COMPOSITIONS AND METHODS FOR CYTOMEGALOVIRUS TREATMENT

<130> 07917-190001

<140> US 10/789,247

<141> 2004-02-27

<150> US 60/450,818

<151> 2003-02-27

<160> 16

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2721

<212> DNA

<213> Human cytomegalovirus

<220>

<221> CDS

<222> (1)...(2718)

<400> 1

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| atg | gaa | tcc | agg | atc | tgg | tgc | ctg | gta | gtc | tgc | gtt | aac | ctg | tgt | atc | 48 |
| Met | Glu | Ser | Arg | Ile | Trp | Cys | Leu | Val | Val | Cys | Val | Asn | Leu | Cys | Ile |    |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| gtc | tgt | ctg | ggg | gct | gcg | gtt | tcc | tct | tct | agt | act | tcc | cat | gca | act | 96 |
| Val | Cys | Leu | Gly | Ala | Ala | Val | Ser | Ser | Ser | Ser | Thr | Ser | His | Ala | Thr |    |
|     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tct | tct | act | cac | aat | gga | agc | cat | act | tct | cgt | acg | acg | tct | gct | caa | 144 |
| Ser | Ser | Thr | His | Asn | Gly | Ser | His | Thr | Ser | Arg | Thr | Thr | Ser | Ala | Gln |     |
|     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| acc | cgg | tca | gtc | tat | tct | caa | cac | gta | acg | tct | tct | gaa | gcc | gtc | agt | 192 |
| Thr | Arg | Ser | Val | Tyr | Ser | Gln | His | Val | Thr | Ser | Ser | Glu | Ala | Val | Ser |     |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cat | aga | gcc | aac | gag | act | atc | tac | aac | act | acc | ctc | aag | tac | gga | gat | 240 |
| His | Arg | Ala | Asn | Glu | Thr | Ile | Tyr | Asn | Thr | Thr | Leu | Lys | Tyr | Gly | Asp |     |
| 65  |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtg | gtg | gga | gtc | aac | act | acc | aag | tac | ccc | tat | cgc | gtg | tgt | tct | atg | 288 |
| Val | Val | Gly | Val | Asn | Thr | Thr | Lys | Tyr | Pro | Tyr | Arg | Val | Cys | Ser | Met |     |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gcc | cag | ggg | acg | gat | ctt | att | cgc | ttt | gaa | cgt | aat | atc | atc | tgc | acc | 336 |
| Ala | Gln | Gly | Thr | Asp | Leu | Ile | Arg | Phe | Glu | Arg | Asn | Ile | Ile | Cys | Thr |     |
|     |     | 100 |     |     |     |     | 105 |     |     |     |     |     | 110 |     |     |     |

|   |      |
|---|------|
| tcg atg aag cct atc aat gaa gac ttg gat gag ggc atc atg gtg gtc<br>Ser Met Lys Pro Ile Asn Glu Asp Leu Asp Glu Gly Ile Met Val Val<br>115 120 125     | 384  |
| tac aag cgc aac atc gtg gcg cac acc ttt aag gta cgg gtc tac caa<br>Tyr Lys Arg Asn Ile Val Ala His Thr Phe Lys Val Arg Val Tyr Gln<br>130 135 140     | 432  |
| aag gtt ttg acg ttt cgt cgt agc tac gct tac atc tac acc act tat<br>Lys Val Leu Thr Phe Arg Arg Ser Tyr Ala Tyr Ile Tyr Thr Thr Tyr<br>145 150 155 160 | 480  |
| ctg ctg ggc agc aat acg gaa tac gtg gcg cct cct atg tgg gag att<br>Leu Leu Gly Ser Asn Thr Glu Tyr Val Ala Pro Pro Met Trp Glu Ile<br>165 170 175     | 528  |
| cat cac atc aac aag ttt gct caa tgc tac agt tcc tac agc cgc gtt<br>His His Ile Asn Lys Phe Ala Gln Cys Tyr Ser Ser Tyr Ser Arg Val<br>180 185 190     | 576  |
| ata gga ggc acg gtt ttc gtg gca tat cat agg gac agt tat gaa aac<br>Ile Gly Gly Thr Val Phe Val Ala Tyr His Arg Asp Ser Tyr Glu Asn<br>195 200 205     | 624  |
| aaa acc atg caa tta att ccc gac gat tat tcc aac acc cac agt acc<br>Lys Thr Met Gln Leu Ile Pro Asp Asp Tyr Ser Asn Thr His Ser Thr<br>210 215 220     | 672  |
| cgt tac gtg acg gtc aag gat cag tgg cac agc cgc ggc agc acc tgg<br>Arg Tyr Val Thr Val Lys Asp Gln Trp His Ser Arg Gly Ser Thr Trp<br>225 230 235 240 | 720  |
| ctc tat cgt gag acc tgt aat ctg aac tgt atg ctg acc atc act act<br>Leu Tyr Arg Glu Thr Cys Asn Leu Asn Cys Met Leu Thr Ile Thr Thr<br>245 250 255     | 768  |
| gcg cgc tcc aag tat cct tat cat ttt ttt gca act tcc acg ggt gat<br>Ala Arg Ser Lys Tyr Pro Tyr His Phe Phe Ala Thr Ser Thr Gly Asp<br>260 265 270     | 816  |
| gtg gtt tac att tct cct ttc tac aac gga acc aat cgc aat gcc agc<br>Val Val Tyr Ile Ser Pro Phe Tyr Asn Gly Thr Asn Arg Asn Ala Ser<br>275 280 285     | 864  |
| tac ttt gga gaa aac gcc gac aag ttt ttc att ttc ccg aac tac acc<br>Tyr Phe Gly Glu Asn Ala Asp Lys Phe Phe Ile Phe Pro Asn Tyr Thr<br>290 295 300     | 912  |
| atc gtt tcc gac ttt gga aga ccc aac gct gcg cca gaa acc cat agg<br>Ile Val Ser Asp Phe Gly Arg Pro Asn Ala Ala Pro Glu Thr His Arg<br>305 310 315 320 | 960  |
| ttg gtg gct ttt ctc gaa cgt gcc gac tcg gtg atc tct tgg gat ata<br>Leu Val Ala Phe Leu Glu Arg Ala Asp Ser Val Ile Ser Trp Asp Ile<br>325 330 335     | 1008 |

|   |      |
|---|------|
| cag gac gag aag aat gtc acc tgc cag ctc acc ttc tgg gaa gcc tcg<br>Gln Asp Glu Lys Asn Val Thr Cys Gln Leu Thr Phe Trp Glu Ala Ser<br>340 345 350     | 1056 |
| gaa cgt act atc cgt tcc gaa gcc gaa gac tcg tac cac ttt tct tct<br>Glu Arg Thr Ile Arg Ser Glu Ala Glu Asp Ser Tyr His Phe Ser Ser<br>355 360 365     | 1104 |
| gcc aaa atg act gca act ttt ctg tct aag aaa caa gaa gtg aac atg<br>Ala Lys Met Thr Ala Thr Phe Leu Ser Lys Lys Gln Glu Val Asn Met<br>370 375 380     | 1152 |
| tcc gac tcc gcg ctg gac tgc gta cgt gat gag gct ata aat aag tta<br>Ser Asp Ser Ala Leu Asp Cys Val Arg Asp Glu Ala Ile Asn Lys Leu<br>385 390 395 400 | 1200 |
| cag cag att ttc aat act tca tac aat caa aca tat gaa aaa tac gga<br>Gln Gln Ile Phe Asn Thr Ser Tyr Asn Gln Thr Tyr Glu Lys Tyr Gly<br>405 410 415     | 1248 |
| aac gtg tcc gtc ttc gaa acc agc ggc ggt ctg gtg gtg ttc tgg caa<br>Asn Val Ser Val Phe Glu Thr Ser Gly Gly Leu Val Val Phe Trp Gln<br>420 425 430     | 1296 |
| ggc atc aag caa aaa tct ttg gtg gaa ttg gaa cgt ttg gcc aat cga<br>Gly Ile Lys Gln Lys Ser Leu Val Glu Leu Glu Arg Leu Ala Asn Arg<br>435 440 445     | 1344 |
| tcc agt ctg aat atc act cat agg acc aga aga agt acg agt gac aat<br>Ser Ser Leu Asn Ile Thr His Arg Thr Arg Arg Ser Thr Ser Asp Asn<br>450 455 460     | 1392 |
| aat aca act cat ttg tcc agc atg gaa tcg gtg cac aat ctg gtc tac<br>Asn Thr Thr His Leu Ser Ser Met Glu Ser Val His Asn Leu Val Tyr<br>465 470 475 480 | 1440 |
| gcc cag ctg cag ttc acc tat gac acg ttg cgc ggt tac atc aac cgg<br>Ala Gln Leu Gln Phe Thr Tyr Asp Thr Leu Arg Gly Tyr Ile Asn Arg<br>485 490 495     | 1488 |
| gcg ctg gcg caa atc gca gaa gcc tgg tgt gtg gat caa cgg cgc acc<br>Ala Leu Ala Gln Ile Ala Glu Ala Trp Cys Val Asp Gln Arg Arg Thr<br>500 505 510     | 1536 |
| cta gag gtc ttc aag gaa ctc agc aag atc aac ccg tca gcc att ctc<br>Leu Glu Val Phe Lys Glu Leu Ser Lys Ile Asn Pro Ser Ala Ile Leu<br>515 520 525     | 1584 |
| tcg gcc att tac aac aaa ccg att gcc gcg cgt ttc atg ggt gat gtc<br>Ser Ala Ile Tyr Asn Lys Pro Ile Ala Ala Arg Phe Met Gly Asp Val<br>530 535 540     | 1632 |
| ttg ggc ctg gcc agc tgc gtg acc atc aac caa acc agc gtc aag gtg<br>Leu Gly Leu Ala Ser Cys Val Thr Ile Asn Gln Thr Ser Val Lys Val<br>545 550 555 560 | 1680 |
| ctg cgt gat atg aac gtg aag gaa tcg cca gga cgc tgc tac tca cga   | 1728 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Leu | Arg | Asp | Met | Asn | Val | Lys | Glu | Ser | Pro | Gly | Arg | Cys | Tyr | Ser | Arg |      |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     |     | 575 |      |
| ccc | gtg | gtc | atc | ttt | aat | ttc | gcc | aac | agc | tcg | tac | gtg | cag | tac | ggc | 1776 |
| Pro | Val | Val | Ile | Phe | Asn | Phe | Ala | Asn | Ser | Ser | Tyr | Val | Gln | Tyr | Gly |      |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |      |
| caa | ctg | ggc | gag | gac | aac | gaa | atc | ctg | ttg | ggc | aac | cac | cgc | act | gag | 1824 |
| Gln | Leu | Gly | Glu | Asp | Asn | Glu | Ile | Leu | Leu | Gly | Asn | His | Arg | Thr | Glu |      |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |      |
| gaa | tgt | cag | ctt | ccc | agc | ctc | aag | atc | ttc | atc | gcc | ggg | aac | tcg | gcc | 1872 |
| Glu | Cys | Gln | Leu | Pro | Ser | Leu | Lys | Ile | Phe | Ile | Ala | Gly | Asn | Ser | Ala |      |
|     | 610 |     |     |     |     |     | 615 |     |     |     | 620 |     |     |     |     |      |
| tac | gag | tac | gtg | gac | tac | ctc | ttc | aaa | cgc | atg | att | gac | ctc | agc | agt | 1920 |
| Tyr | Glu | Tyr | Val | Asp | Tyr | Leu | Phe | Lys | Arg | Met | Ile | Asp | Leu | Ser | Ser |      |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |      |
| atc | tcc | acc | gtc | gac | agc | atg | atc | gcc | ctg | gat | atc | gac | ccg | ctg | gaa | 1968 |
| Ile | Ser | Thr | Val | Asp | Ser | Met | Ile | Ala | Leu | Asp | Ile | Asp | Pro | Leu | Glu |      |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |      |
| aat | acc | gac | ttc | agg | gta | ctg | gaa | ctt | tac | tcg | cag | aaa | gag | ctg | cgt | 2016 |
| Asn | Thr | Asp | Phe | Arg | Val | Leu | Glu | Leu | Tyr | Ser | Gln | Lys | Glu | Leu | Arg |      |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |      |
| tcc | agc | aac | gtt | ttt | gac | ctc | gaa | gag | atc | atg | cgc | gaa | ttc | aac | tcg | 2064 |
| Ser | Ser | Asn | Val | Phe | Asp | Leu | Glu | Glu | Ile | Met | Arg | Glu | Phe | Asn | Ser |      |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |      |
| tac | aag | cag | cgg | gta | aag | tac | gtg | gag | gac | aag | gta | gtc | gac | ccg | cta | 2112 |
| Tyr | Lys | Gln | Arg | Val | Lys | Tyr | Val | Glu | Asp | Lys | Val | Val | Asp | Pro | Leu |      |
|     | 690 |     |     |     |     |     | 695 |     |     |     | 700 |     |     |     |     |      |
| ccg | ccc | tac | ctc | aag | ggc | ctg | gac | gac | ctc | atg | agc | ggc | ctg | ggc | gcc | 2160 |
| Pro | Pro | Tyr | Leu | Lys | Gly | Leu | Asp | Asp | Leu | Met | Ser | Gly | Leu | Gly | Ala |      |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |      |
| gcg | gga | aag | gcc | gtt | ggc | gta | gcc | att | ggg | gcc | gtg | ggc | ggc | gcg | gtg | 2208 |
| Ala | Gly | Lys | Ala | Val | Gly | Val | Ala | Ile | Gly | Ala | Val | Gly | Gly | Ala | Val |      |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |     |      |
| gcc | tcc | gtg | gtc | gaa | ggc | gtt | gcc | acc | ttc | ctc | aaa | aac | ccc | ttc | gga | 2256 |
| Ala | Ser | Val | Val | Glu | Gly | Val | Ala | Thr | Phe | Leu | Lys | Asn | Pro | Phe | Gly |      |
|     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |     |     |      |
| gcc | ttc | acc | atc | atc | ctc | gtg | gcc | ata | gcc | gta | gtc | att | atc | act | tat | 2304 |
| Ala | Phe | Thr | Ile | Ile | Leu | Val | Ala | Ile | Ala | Val | Val | Ile | Ile | Thr | Tyr |      |
|     |     |     | 755 |     |     |     | 760 |     |     |     |     | 765 |     |     |     |      |
| ttg | atc | tat | act | cga | cag | cgg | cgt | ctg | tgc | acg | cag | ccg | ctg | cag | aac | 2352 |
| Leu | Ile | Tyr | Thr | Arg | Gln | Arg | Arg | Leu | Cys | Thr | Gln | Pro | Leu | Gln | Asn |      |
|     | 770 |     |     |     |     |     | 775 |     |     |     | 780 |     |     |     |     |      |
| ctc | ttt | ccc | tat | ctg | gtg | tcc | gcc | gac | ggg | acc | acc | gtg | acg | tcg | ggc | 2400 |
| Leu | Phe | Pro | Tyr | Leu | Val | Ser | Ala | Asp | Gly | Thr | Thr | Val | Thr | Ser | Gly |      |

| 785   | 790 | 795 | 800 |      |
|---|-----|-----|-----|------|
| agc acc aaa gac acg tcg tta cag gct ccg cct tcc tac gag gaa agt |     |     |     | 2448 |
| Ser Thr Lys Asp Thr Ser Leu Gln Ala Pro Pro Ser Tyr Glu Glu Ser | 805 | 810 | 815 |      |
| gtt tat aat tct ggt cgc aaa gga ccg gga cca ccg tcg tct gat gca |     |     |     | 2496 |
| Val Tyr Asn Ser Gly Arg Lys Gly Pro Gly Pro Pro Ser Ser Asp Ala | 820 | 825 | 830 |      |
| tcc acg gcg gct ccg cct tac acc aac gag cag gct tac cag atg ctt |     |     |     | 2544 |
| Ser Thr Ala Ala Pro Pro Tyr Thr Asn Glu Gln Ala Tyr Gln Met Leu | 835 | 840 | 845 |      |
| ctg gcc ctg gcc cgt ctg gac gca gag cag cga gcg cag cag aac ggt |     |     |     | 2592 |
| Leu Ala Leu Ala Arg Leu Asp Ala Glu Gln Arg Ala Gln Gln Asn Gly | 850 | 855 | 860 |      |
| aca gat tct ttg gac gga cag act ggc acg cag gac aag gga cag aag |     |     |     | 2640 |
| Thr Asp Ser Leu Asp Gly Gln Thr Gly Thr Gln Asp Lys Gly Gln Lys | 865 | 870 | 875 | 880  |
| cct aac ctg cta gac cgg ctg cga cat cgc aaa aac ggc tac aga cac |     |     |     | 2688 |
| Pro Asn Leu Leu Asp Arg Leu Arg His Arg Lys Asn Gly Tyr Arg His | 885 | 890 | 895 |      |
| ttg aaa gac tcc gac gaa gaa gag aac gtc tga                     |     |     |     | 2721 |
| Leu Lys Asp Ser Asp Glu Glu Glu Asn Val                         | 900 | 905 |     |      |

&lt;210&gt; 2

&lt;211&gt; 906

&lt;212&gt; PRT

&lt;213&gt; Human cytomegalovirus

&lt;400&gt; 2

|   |     |     |     |     |
|---|-----|-----|-----|-----|
| Met Glu Ser Arg Ile Trp Cys Leu Val Val Cys Val Asn Leu Cys Ile | 1   | 5   | 10  | 15  |
| Val Cys Leu Gly Ala Ala Val Ser Ser Ser Thr Ser His Ala Thr     | 20  | 25  | 30  |     |
| Ser Ser Thr His Asn Gly Ser His Thr Ser Arg Thr Thr Ser Ala Gln | 35  | 40  | 45  |     |
| Thr Arg Ser Val Tyr Ser Gln His Val Thr Ser Ser Glu Ala Val Ser | 50  | 55  | 60  |     |
| His Arg Ala Asn Glu Thr Ile Tyr Asn Thr Thr Leu Lys Tyr Gly Asp | 65  | 70  | 75  | 80  |
| Val Val Gly Val Asn Thr Thr Lys Tyr Pro Tyr Arg Val Cys Ser Met | 85  | 90  | 95  |     |
| Ala Gln Gly Thr Asp Leu Ile Arg Phe Glu Arg Asn Ile Ile Cys Thr | 100 | 105 | 110 |     |
| Ser Met Lys Pro Ile Asn Glu Asp Leu Asp Glu Gly Ile Met Val Val | 115 | 120 | 125 |     |
| Tyr Lys Arg Asn Ile Val Ala His Thr Phe Lys Val Arg Val Tyr Gln | 130 | 135 | 140 |     |
| Lys Val Leu Thr Phe Arg Arg Ser Tyr Ala Tyr Ile Tyr Thr Thr Tyr | 145 | 150 | 155 | 160 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Leu | Leu | Gly | Ser | Asn | Thr | Glu | Tyr | Val | Ala | Pro | Pro | Met | Trp | Glu | Ile |  |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |  |
| His | His | Ile | Asn | Lys | Phe | Ala | Gln | Cys | Tyr | Ser | Ser | Tyr | Ser | Arg | Val |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |  |
| Ile | Gly | Gly | Thr | Val | Phe | Val | Ala | Tyr | His | Arg | Asp | Ser | Tyr | Glu | Asn |  |
|     | 195 |     |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |  |
| Lys | Thr | Met | Gln | Leu | Ile | Pro | Asp | Asp | Tyr | Ser | Asn | Thr | His | Ser | Thr |  |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |  |
| Arg | Tyr | Val | Thr | Val | Lys | Asp | Gln | Trp | His | Ser | Arg | Gly | Ser | Thr | Trp |  |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |  |
| Leu | Tyr | Arg | Glu | Thr | Cys | Asn | Leu | Asn | Cys | Met | Leu | Thr | Ile | Thr | Thr |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |  |
| Ala | Arg | Ser | Lys | Tyr | Pro | Tyr | His | Phe | Phe | Ala | Thr | Ser | Thr | Gly | Asp |  |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |  |
| Val | Val | Tyr | Ile | Ser | Pro | Phe | Tyr | Asn | Gly | Thr | Asn | Arg | Asn | Ala | Ser |  |
|     | 275 |     |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |  |
| Tyr | Phe | Gly | Glu | Asn | Ala | Asp | Lys | Phe | Phe | Ile | Phe | Pro | Asn | Tyr | Thr |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |  |
| Ile | Val | Ser | Asp | Phe | Gly | Arg | Pro | Asn | Ala | Ala | Pro | Glu | Thr | His | Arg |  |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |  |
| Leu | Val | Ala | Phe | Leu | Glu | Arg | Ala | Asp | Ser | Val | Ile | Ser | Trp | Asp | Ile |  |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |  |
| Gln | Asp | Glu | Lys | Asn | Val | Thr | Cys | Gln | Leu | Thr | Phe | Trp | Glu | Ala | Ser |  |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |  |
| Glu | Arg | Thr | Ile | Arg | Ser | Glu | Ala | Glu | Asp | Ser | Tyr | His | Phe | Ser | Ser |  |
|     |     | 355 |     |     |     |     | 360 |     |     |     | 365 |     |     |     |     |  |
| Ala | Lys | Met | Thr | Ala | Thr | Phe | Leu | Ser | Lys | Lys | Gln | Glu | Val | Asn | Met |  |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |  |
| Ser | Asp | Ser | Ala | Leu | Asp | Cys | Val | Arg | Asp | Glu | Ala | Ile | Asn | Lys | Leu |  |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |  |
| Gln | Gln | Ile | Phe | Asn | Thr | Ser | Tyr | Asn | Gln | Thr | Tyr | Glu | Lys | Tyr | Gly |  |
|     |     |     | 405 |     |     |     |     |     | 410 |     |     |     |     | 415 |     |  |
| Asn | Val | Ser | Val | Phe | Glu | Thr | Ser | Gly | Gly | Leu | Val | Val | Phe | Trp | Gln |  |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |  |
| Gly | Ile | Lys | Gln | Lys | Ser | Leu | Val | Glu | Leu | Glu | Arg | Leu | Ala | Asn | Arg |  |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |  |
| Ser | Ser | Leu | Asn | Ile | Thr | His | Arg | Thr | Arg | Arg | Ser | Thr | Ser | Asp | Asn |  |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |  |
| Asn | Thr | Thr | His | Leu | Ser | Ser | Met | Glu | Ser | Val | His | Asn | Leu | Val | Tyr |  |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |  |
| Ala | Gln | Leu | Gln | Phe | Thr | Tyr | Asp | Thr | Leu | Arg | Gly | Tyr | Ile | Asn | Arg |  |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |  |
| Ala | Leu | Ala | Gln | Ile | Ala | Glu | Ala | Trp | Cys | Val | Asp | Gln | Arg | Arg | Thr |  |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |  |
| Leu | Glu | Val | Phe | Lys | Glu | Leu | Ser | Lys | Ile | Asn | Pro | Ser | Ala | Ile | Leu |  |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |  |
| Ser | Ala | Ile | Tyr | Asn | Lys | Pro | Ile | Ala | Ala | Arg | Phe | Met | Gly | Asp | Val |  |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |  |
| Leu | Gly | Leu | Ala | Ser | Cys | Val | Thr | Ile | Asn | Gln | Thr | Ser | Val | Lys | Val |  |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |  |
| Leu | Arg | Asp | Met | Asn | Val | Lys | Glu | Ser | Pro | Gly | Arg | Cys | Tyr | Ser | Arg |  |
|     |     |     |     | 565 |     |     |     |     | 570 |     |     |     |     | 575 |     |  |
| Pro | Val | Val | Ile | Phe | Asn | Phe | Ala | Asn | Ser | Ser | Tyr | Val | Gln | Tyr | Gly |  |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |  |
| Gln | Leu | Gly | Glu | Asp | Asn | Glu | Ile | Leu | Leu | Gly | Asn | His | Arg | Thr | Glu |  |
|     |     | 595 |     |     |     | 600 |     |     |     |     |     | 605 |     |     |     |  |
| Glu | Cys | Gln | Leu | Pro | Ser | Leu | Lys | Ile | Phe | Ile | Ala | Gly | Asn | Ser | Ala |  |

|                         |                         |                         |     |     |  |
|-------------------------|-------------------------|-------------------------|-----|-----|--|
| 610                     |                         | 615                     |     | 620 |  |
| Tyr Glu Tyr Val Asp     | Tyr Leu Phe Lys Arg Met | Ile Asp Leu Ser Ser     |     |     |  |
| 625                     | 630                     | 635                     | 640 |     |  |
| Ile Ser Thr Val Asp     | Ser Met Ile Ala Leu Asp | Ile Asp Pro Leu Glu     |     |     |  |
|                         | 645                     | 650                     | 655 |     |  |
| Asn Thr Asp Phe Arg     | Val Leu Glu Leu Tyr     | Ser Gln Lys Glu Leu Arg |     |     |  |
|                         | 660                     | 665                     | 670 |     |  |
| Ser Ser Asn Val Phe Asp | Leu Glu Ile Met Arg     | Glu Phe Asn Ser         |     |     |  |
|                         | 675                     | 680                     | 685 |     |  |
| Tyr Lys Gln Arg Val Lys | Tyr Val Glu Asp Lys     | Val Val Asp Pro Leu     |     |     |  |
|                         | 690                     | 695                     | 700 |     |  |
| Pro Pro Tyr Leu Lys Gly | Leu Asp Asp Leu Met     | Ser Gly Leu Gly Ala     |     |     |  |
| 705                     | 710                     | 715                     | 720 |     |  |
| Ala Gly Lys Ala Val Gly | Val Ala Ile Gly Ala     | Val Gly Gly Ala Val     |     |     |  |
|                         | 725                     | 730                     | 735 |     |  |
| Ala Ser Val Val Glu Gly | Val Ala Thr Phe Leu     | Lys Asn Pro Phe Gly     |     |     |  |
|                         | 740                     | 745                     | 750 |     |  |
| Ala Phe Thr Ile Ile Leu | Val Ala Ile Ala Val     | Val Ile Ile Thr Tyr     |     |     |  |
|                         | 755                     | 760                     | 765 |     |  |
| Leu Ile Tyr Thr Arg Gln | Arg Arg Leu Cys Thr     | Gln Pro Leu Gln Asn     |     |     |  |
|                         | 770                     | 775                     | 780 |     |  |
| Leu Phe Pro Tyr Leu Val | Ser Ala Asp Gly Thr     | Thr Val Thr Ser Gly     |     |     |  |
| 785                     | 790                     | 795                     | 800 |     |  |
| Ser Thr Lys Asp Thr Ser | Leu Gln Ala Pro         | Pro Ser Tyr Glu Glu Ser |     |     |  |
|                         | 805                     | 810                     | 815 |     |  |
| Val Tyr Asn Ser Gly Arg | Lys Gly Pro Gly         | Pro Pro Ser Ser Asp Ala |     |     |  |
|                         | 820                     | 825                     | 830 |     |  |
| Ser Thr Ala Ala Pro Pro | Tyr Thr Asn Glu Gln     | Ala Tyr Gln Met Leu     |     |     |  |
|                         | 835                     | 840                     | 845 |     |  |
| Leu Ala Leu Ala Arg Leu | Asp Ala Glu Gln Arg     | Ala Gln Gln Asn Gly     |     |     |  |
|                         | 850                     | 855                     | 860 |     |  |
| Thr Asp Ser Leu Asp Gly | Gln Thr Gly Thr Gln     | Asp Lys Gly Gln Lys     |     |     |  |
| 865                     | 870                     | 875                     | 880 |     |  |
| Pro Asn Leu Leu Asp Arg | Leu Arg His Arg Lys     | Asn Gly Tyr Arg His     |     |     |  |
|                         | 885                     | 890                     | 895 |     |  |
| Leu Lys Asp Ser Asp Glu | Glu Glu Glu Asn Val     |                         |     |     |  |
|                         | 900                     | 905                     |     |     |  |

&lt;210&gt; 3

&lt;211&gt; 1119

&lt;212&gt; DNA

&lt;213&gt; Human cytomegalovirus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)...(1116)

&lt;400&gt; 3

|   |    |
|---|----|
| atg gcc ccc tcg cac gtg gat aag gtg aat aca cgg aca tgg agc gct | 48 |
| Met Ala Pro Ser His Val Asp Lys Val Asn Thr Arg Thr Trp Ser Ala |    |
| 1 5 10 15   |    |

|   |    |
|---|----|
| tct atc gtt ttc atg gtg ctg act ttt gtc aac gtc agc gtg cat cta | 96 |
| Ser Ile Val Phe Met Val Leu Thr Phe Val Asn Val Ser Val His Leu |    |
| 20 25 30  |    |

|   |     |
|---|-----|
| gtg ctg agc aat ttt ccg cac ctg ggc tac ccc tgc gtc tac tat cac | 144 |
|---|-----|

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Leu | Ser | Asn | Phe | Pro | His | Leu | Gly | Tyr | Pro | Cys | Val | Tyr | Tyr | His |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
| gtc | gtg | gac | ttt | gaa | agg | ctc | aac | atg | tcg | gcc | tac | aac | gta | atg | cac | 192 |
| Val | Val | Asp | Phe | Glu | Arg | Leu | Asn | Met | Ser | Ala | Tyr | Asn | Val | Met | His |     |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |
| ctg | cac | acg | cct | atg | ctt | ttc | tta | gac | tcg | gtg | cag | ttg | gtg | tgc | tac | 240 |
| Leu | His | Thr | Pro | Met | Leu | Phe | Leu | Asp | Ser | Val | Gln | Leu | Val | Cys | Tyr |     |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     |     | 80  |     |
| gcc | gtg | ttc | atg | cag | ctc | gtc | ttt | tta | gcc | gtg | acc | atc | tac | tac | ctg | 288 |
| Ala | Val | Phe | Met | Gln | Leu | Val | Phe | Leu | Ala | Val | Thr | Ile | Tyr | Tyr | Leu |     |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |
| gta | tgc | tgg | atc | aag | atc | agc | atg | cgc | aag | gac | aaa | ggc | atg | agc | cta | 336 |
| Val | Cys | Trp | Ile | Lys | Ile | Ser | Met | Arg | Lys | Asp | Lys | Gly | Met | Ser | Leu |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| aac | cag | tcg | aca | cgc | gac | att | tcg | tac | atg | ggc | gac | agc | ctc | aca | gcc | 384 |
| Asn | Gln | Ser | Thr | Arg | Asp | Ile | Ser | Tyr | Met | Gly | Asp | Ser | Leu | Thr | Ala |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| ttc | ctc | ttc | att | ctc | agc | atg | gac | acg | ttc | caa | cta | ttc | aca | ctg | acc | 432 |
| Phe | Leu | Phe | Ile | Leu | Ser | Met | Asp | Thr | Phe | Gln | Leu | Phe | Thr | Leu | Thr |     |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| atg | tca | ttt | cgg | ctg | ccc | agc | atg | atc | gcc | ttc | atg | gcc | gcc | gtg | cac | 480 |
| Met | Ser | Phe | Arg | Leu | Pro | Ser | Met | Ile | Ala | Phe | Met | Ala | Ala | Val | His |     |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |
| ttt | ttc | tgc | ctg | acc | att | ttc | aac | gtg | agc | atg | gtc | acg | cag | tac | cgc | 528 |
| Phe | Phe | Cys | Leu | Thr | Ile | Phe | Asn | Val | Ser | Met | Val | Thr | Gln | Tyr | Arg |     |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |     |
| agc | tac | aaa | cgc | tca | ctc | ttt | ttc | ttc | tcg | cgt | ctg | cac | ccc | aag | ctc | 576 |
| Ser | Tyr | Lys | Arg | Ser | Leu | Phe | Phe | Phe | Ser | Arg | Leu | His | Pro | Lys | Leu |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| aaa | ggt | acg | gtg | cag | ttc | cgc | acg | ctc | atc | gtc | aac | ctg | gta | gag | gta | 624 |
| Lys | Gly | Thr | Val | Gln | Phe | Arg | Thr | Leu | Ile | Val | Asn | Leu | Val | Glu | Val |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     |
| gcg | ctt | ggt | ttc | aac | acc | acc | gtg | gta | gcc | atg | gcc | ctg | tgc | tac | ggc | 672 |
| Ala | Leu | Gly | Phe | Asn | Thr | Thr | Val | Val | Ala | Met | Ala | Leu | Cys | Tyr | Gly |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| ttc | gga | aac | aac | ttt | ttc | gtg | cgt | aca | ggc | cac | atg | gtg | tta | gcc | gtc | 720 |
| Phe | Gly | Asn | Asn | Phe | Phe | Val | Arg | Thr | Gly | His | Met | Val | Leu | Ala | Val |     |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |     |
| ttc | gtg | gtc | tac | gct | atc | atc | tcc | atc | atc | tac | ttt | tta | ctg | atc | gag | 768 |
| Phe | Val | Val | Tyr | Ala | Ile | Ile | Ser | Ile | Ile | Tyr | Phe | Leu | Leu | Ile | Glu |     |
|     |     |     |     | 245 |     |     |     | 250 |     |     |     |     |     | 255 |     |     |
| gcc | gtc | ttt | ttt | caa | tac | gtc | aag | gtg | caa | ttc | ggc | tac | cac | ctg | ggc | 816 |
| Ala | Val | Phe | Phe | Gln | Tyr | Val | Lys | Val | Gln | Phe | Gly | Tyr | His | Leu | Gly |     |



| 260   | 265 | 270 |      |
|---|-----|-----|------|
| gcc ttc ttt gga ctc tgc ggc ctc atc tac ccc atc gtg cag tac gat |     |     | 864  |
| Ala Phe Phe Gly Leu Cys Gly Leu Ile Tyr Pro Ile Val Gln Tyr Asp |     |     |      |
| 275   | 280 | 285 |      |
| acc ttc ctc agc aac gaa tac cgc acc ggc atc agc tgg tcg ttc ggc |     |     | 912  |
| Thr Phe Leu Ser Asn Glu Tyr Arg Thr Gly Ile Ser Trp Ser Phe Gly |     |     |      |
| 290   | 295 | 300 |      |
| atg ctc ttt ttc ata tgg gcc atg ttt acg acg tgt cgc gcc gtc cgc |     |     | 960  |
| Met Leu Phe Phe Ile Trp Ala Met Phe Thr Thr Cys Arg Ala Val Arg |     |     |      |
| 305   | 310 | 315 | 320  |
| tac ttt cgc gga cgc ggt agc ggc agt gtc aag tac cag gcg ctg gcc |     |     | 1008 |
| Tyr Phe Arg Gly Arg Gly Ser Gly Ser Val Lys Tyr Gln Ala Leu Ala |     |     |      |
| 325   | 330 | 335 |      |
| aca gcc tcc ggc gaa gaa gtc gct gtg ctc agt cac cac gac agc ttg |     |     | 1056 |
| Thr Ala Ser Gly Glu Glu Val Ala Val Leu Ser His His Asp Ser Leu |     |     |      |
| 340   | 345 | 350 |      |
| gaa agc cgt cgc ctc cgc gaa gaa gag gac gac gac gat gat gaa gac |     |     | 1104 |
| Glu Ser Arg Arg Leu Arg Glu Glu Glu Asp Asp Asp Asp Asp Glu Asp |     |     |      |
| 355   | 360 | 365 |      |
| ttc gag gac gct taa   |     |     | 1119 |
| Phe Glu Asp Ala   |     |     |      |
| 370   |     |     |      |

&lt;210&gt; 4

&lt;211&gt; 372

&lt;212&gt; PRT

&lt;213&gt; Human cytomegalovirus

&lt;400&gt; 4

|   |     |     |     |
|---|-----|-----|-----|
| Met Ala Pro Ser His Val Asp Lys Val Asn Thr Arg Thr Trp Ser Ala |     |     |     |
| 1   | 5   | 10  | 15  |
| Ser Ile Val Phe Met Val Leu Thr Phe Val Asn Val Ser Val His Leu |     |     |     |
| 20  | 25  | 30  |     |
| Val Leu Ser Asn Phe Pro His Leu Gly Tyr Pro Cys Val Tyr Tyr His |     |     |     |
| 35  | 40  | 45  |     |
| Val Val Asp Phe Glu Arg Leu Asn Met Ser Ala Tyr Asn Val Met His |     |     |     |
| 50  | 55  | 60  |     |
| Leu His Thr Pro Met Leu Phe Leu Asp Ser Val Gln Leu Val Cys Tyr |     |     |     |
| 65  | 70  | 75  | 80  |
| Ala Val Phe Met Gln Leu Val Phe Leu Ala Val Thr Ile Tyr Tyr Leu |     |     |     |
| 85  | 90  | 95  |     |
| Val Cys Trp Ile Lys Ile Ser Met Arg Lys Asp Lys Gly Met Ser Leu |     |     |     |
| 100   | 105 | 110 |     |
| Asn Gln Ser Thr Arg Asp Ile Ser Tyr Met Gly Asp Ser Leu Thr Ala |     |     |     |
| 115   | 120 | 125 |     |
| Phe Leu Phe Ile Leu Ser Met Asp Thr Phe Gln Leu Phe Thr Leu Thr |     |     |     |
| 130   | 135 | 140 |     |
| Met Ser Phe Arg Leu Pro Ser Met Ile Ala Phe Met Ala Ala Val His |     |     |     |
| 145   | 150 | 155 | 160 |

Phe Phe Cys Leu Thr Ile Phe Asn Val Ser Met Val Thr Gln Tyr Arg  
 165 170 175  
 Ser Tyr Lys Arg Ser Leu Phe Phe Phe Ser Arg Leu His Pro Lys Leu  
 180 185 190  
 Lys Gly Thr Val Gln Phe Arg Thr Leu Ile Val Asn Leu Val Glu Val  
 195 200 205  
 Ala Leu Gly Phe Asn Thr Thr Val Val Ala Met Ala Leu Cys Tyr Gly  
 210 215 220  
 Phe Gly Asn Asn Phe Phe Val Arg Thr Gly His Met Val Leu Ala Val  
 225 230 235 240  
 Phe Val Val Tyr Ala Ile Ile Ser Ile Ile Tyr Phe Leu Leu Ile Glu  
 245 250 255  
 Ala Val Phe Phe Gln Tyr Val Lys Val Gln Phe Gly Tyr His Leu Gly  
 260 265 270  
 Ala Phe Phe Gly Leu Cys Gly Leu Ile Tyr Pro Ile Val Gln Tyr Asp  
 275 280 285  
 Thr Phe Leu Ser Asn Glu Tyr Arg Thr Gly Ile Ser Trp Ser Phe Gly  
 290 295 300  
 Met Leu Phe Phe Ile Trp Ala Met Phe Thr Thr Cys Arg Ala Val Arg  
 305 310 315 320  
 Tyr Phe Arg Gly Arg Gly Ser Gly Ser Val Lys Tyr Gln Ala Leu Ala  
 325 330 335  
 Thr Ala Ser Gly Glu Glu Val Ala Val Leu Ser His His Asp Ser Leu  
 340 345 350  
 Glu Ser Arg Arg Leu Arg Glu Glu Glu Asp Asp Asp Asp Asp Glu Asp  
 355 360 365  
 Phe Glu Asp Ala  
 370

<210> 5

<211> 417

<212> DNA

<213> Human cytomegalovirus

<220>

<221> CDS

<222> (1)...(414)

<400> 5

atg gag tgg aac aca cta gta tta ggt ctt tta gtt tta tcg gta gtg 48  
 Met Glu Trp Asn Thr Leu Val Leu Gly Leu Leu Val Leu Ser Val Val  
 1 5 10 15

gca gag agt tct ggt aac aat tca tcc acg tca acc tct gca act aca 96  
 Ala Glu Ser Ser Gly Asn Asn Ser Ser Thr Ser Thr Ser Ala Thr Thr  
 20 25 30

tca aag tct tct gct agc gta tca act acc aaa cta aca aca gtt gca 144  
 Ser Lys Ser Ser Ala Ser Val Ser Thr Thr Lys Leu Thr Thr Val Ala  
 35 40 45

aca act tct gca aca act acg acg act acg acc tta tcg aca act agc 192  
 Thr Thr Ser Ala Thr Thr Thr Thr Thr Thr Thr Leu Ser Thr Thr Ser  
 50 55 60

act aaa ctc agt tct acc acc cac gat cct aat gtg atg aga cga cat 240  
 Thr Lys Leu Ser Ser Thr Thr His Asp Pro Asn Val Met Arg Arg His

| 65  | 70  | 75  | 80  |     |
|---|-----|-----|-----|-----|
| gcg aac gat gat ttt tac aag gcg cat tgc aca tcg cat atg tat gag |     |     |     | 288 |
| Ala Asn Asp Asp Phe Tyr Lys Ala His Cys Thr Ser His Met Tyr Glu |     |     |     |     |
|   | 85  | 90  | 95  |     |
| ctc tca ctg tcc agc ttt gcg gcc tgg tgg act atg ctt aat gct cta |     |     |     | 336 |
| Leu Ser Leu Ser Ser Phe Ala Ala Trp Thr Met Leu Asn Ala Leu     |     |     |     |     |
|   | 100 | 105 | 110 |     |
| att ctc atg gga gct ttt tgt att gta cta cga cat tgc tgc ttc cag |     |     |     | 384 |
| Ile Leu Met Gly Ala Phe Cys Ile Val Leu Arg His Cys Cys Phe Gln |     |     |     |     |
|   | 115 | 120 | 125 |     |
| aac ttt act gca acc acc acc aaa ggc tat tga                     |     |     |     | 417 |
| Asn Phe Thr Ala Thr Thr Thr Lys Gly Tyr                         |     |     |     |     |
|   | 130 | 135 |     |     |

<210> 6  
 <211> 138  
 <212> PRT  
 <213> Human cytomegalovirus

<400> 6  
 Met Glu Trp Asn Thr Leu Val Leu Gly Leu Leu Val Leu Ser Val Val  
 1 5 10 15  
 Ala Glu Ser Ser Gly Asn Asn Ser Ser Thr Ser Thr Ser Ala Thr Thr  
 20 25 30  
 Ser Lys Ser Ser Ala Ser Val Ser Thr Thr Lys Leu Thr Thr Val Ala  
 35 40 45  
 Thr Thr Ser Ala Thr Thr Thr Thr Thr Thr Thr Leu Ser Thr Thr Ser  
 50 55 60  
 Thr Lys Leu Ser Ser Thr Thr His Asp Pro Asn Val Met Arg Arg His  
 65 70 75 80  
 Ala Asn Asp Asp Phe Tyr Lys Ala His Cys Thr Ser His Met Tyr Glu  
 85 90 95  
 Leu Ser Leu Ser Ser Phe Ala Ala Trp Trp Thr Met Leu Asn Ala Leu  
 100 105 110  
 Ile Leu Met Gly Ala Phe Cys Ile Val Leu Arg His Cys Cys Phe Gln  
 115 120 125  
 Asn Phe Thr Ala Thr Thr Thr Lys Gly Tyr  
 130 135

<210> 7  
 <211> 2232  
 <212> DNA  
 <213> Human cytomegalovirus

<220>  
 <221> CDS  
 <222> (1)...(2229)

| 65  | 70 | 75 | 80 |    |
|---|----|----|----|----|
| atg cgg ccc ggc ctc ccc ccc tac ctc act gtc ttc acc gtc tac ctc |    |    |    | 48 |
| Met Arg Pro Gly Leu Pro Pro Tyr Leu Thr Val Phe Thr Val Tyr Leu |    |    |    |    |
|   | 5  | 10 | 15 |    |

|  |     |
|--|-----|
| ctc agt cac cta cct tcg caa cga tat ggc gcg gac gcc gca tcc gaa<br>Leu Ser His Leu Pro Ser Gln Arg Tyr Gly Ala Asp Ala Ala Ser Glu | 96  |
| 20 25 30   |     |
| gcg ctg gac cct cac gca ttt cac cta cta ctc aac acc tac ggg aga<br>Ala Leu Asp Pro His Ala Phe His Leu Leu Leu Asn Thr Tyr Gly Arg | 144 |
| 35 40 45   |     |
| ccc atc cgc ttc ctg cgt gaa aac acc acc cag tgc acc tac aac agc<br>Pro Ile Arg Phe Leu Arg Glu Asn Thr Thr Gln Cys Thr Tyr Asn Ser | 192 |
| 50 55 60   |     |
| agc ctc cgt aac agc acg gtc gtc agg gaa aac gcc atc agt ttc aac<br>Ser Leu Arg Asn Ser Thr Val Val Arg Glu Asn Ala Ile Ser Phe Asn | 240 |
| 65 70 75 80  |     |
| ttt ttc caa agc tat aat caa tac tat gta ttc cat atg cct cga tgt<br>Phe Phe Gln Ser Tyr Asn Gln Tyr Tyr Val Phe His Met Pro Arg Cys | 288 |
| 85 90 95   |     |
| ctt ttt gcg ggt cct ctg gcg gag cag ttt ctg aac cag gta gat ctg<br>Leu Phe Ala Gly Pro Leu Ala Glu Gln Phe Leu Asn Gln Val Asp Leu | 336 |
| 100 105 110  |     |
| acc gaa acc cta gaa aga tac caa cag aga ctt aac acc tac gca ttg<br>Thr Glu Thr Leu Glu Arg Tyr Gln Gln Arg Leu Asn Thr Tyr Ala Leu | 384 |
| 115 120 125  |     |
| gta tcc aaa gac ctg gcc agc tac cga tct ttt tcg cag cag ctg aag<br>Val Ser Lys Asp Leu Ala Ser Tyr Arg Ser Phe Ser Gln Gln Leu Lys | 432 |
| 130 135 140  |     |
| gca caa gac agc ctg ggt cag cag ccc acc acc gtg cca ccg ccc att<br>Ala Gln Asp Ser Leu Gly Gln Gln Pro Thr Thr Val Pro Pro Pro Ile | 480 |
| 145 150 155 160  |     |
| gat ctg tca ata cct cac gtt tgg atg cca ccc caa acc act cca cac<br>Asp Leu Ser Ile Pro His Val Trp Met Pro Pro Gln Thr Thr Pro His | 528 |
| 165 170 175  |     |
| gac tgg aag gga tcg cac acc acc tcg gga cta cat cgg cca cac ttt<br>Asp Trp Lys Gly Ser His Thr Thr Ser Gly Leu His Arg Pro His Phe | 576 |
| 180 185 190  |     |
| aac cag acc tgt atc ctc ttt gat gga cac gat ctg ctt ttc agc acc<br>Asn Gln Thr Cys Ile Leu Phe Asp Gly His Asp Leu Leu Phe Ser Thr | 624 |
| 195 200 205  |     |
| gtt acg ccc tgt ctg cac cag ggc ttt tac ctc atg gac gaa cta cgt<br>Val Thr Pro Cys Leu His Gln Gly Phe Tyr Leu Met Asp Glu Leu Arg | 672 |
| 210 215 220  |     |
| tac gtt aaa atc aca ctg acc gag gac ttc ttc gta gtt acg gta tct<br>Tyr Val Lys Ile Thr Leu Thr Glu Asp Phe Phe Val Val Thr Val Ser | 720 |
| 225 230 235 240  |     |

|   |      |
|---|------|
| ata gac gac gac aca ccc atg ctg ctt atc ttc ggt cat ctt cca cgc<br>Ile Asp Asp Asp Thr Pro Met Leu Leu Ile Phe Gly His Leu Pro Arg<br>245 250 255     | 768  |
| gta ctc ttc aaa gcg ccc tat caa cgc gac aac ttt ata cta cga caa<br>Val Leu Phe Lys Ala Pro Tyr Gln Arg Asp Asn Phe Ile Leu Arg Gln<br>260 265 270     | 816  |
| act gaa aaa cac gag ctc ctg gta cta gtt aag aaa gct caa cta aac<br>Thr Glu Lys His Glu Leu Leu Val Leu Val Lys Lys Ala Gln Leu Asn<br>275 280 285     | 864  |
| cgt cac tcc tat ctc aaa gac tcg gac ttt ctc gac gcc gca ctc gac<br>Arg His Ser Tyr Leu Lys Asp Ser Asp Phe Leu Asp Ala Ala Leu Asp<br>290 295 300     | 912  |
| ttc aac tac ctg gac ctc agc gca ctg tta cgt aac agc ttt cac cgt<br>Phe Asn Tyr Leu Asp Leu Ser Ala Leu Leu Arg Asn Ser Phe His Arg<br>305 310 315 320 | 960  |
| tac gct gta gac gta ctc aaa agc ggt cga tgt caa atg ttg gac cgc<br>Tyr Ala Val Asp Val Leu Lys Ser Gly Arg Cys Gln Met Leu Asp Arg<br>325 330 335     | 1008 |
| cgc acg gta gaa atg gcc ttc gcc tac gca tta gca ctg ttc gcg gca<br>Arg Thr Val Glu Met Ala Phe Ala Tyr Ala Leu Ala Leu Phe Ala Ala<br>340 345 350     | 1056 |
| gcc cga caa gaa gag gcc ggc acc gaa atc tcc atc cca cga gcc cta<br>Ala Arg Gln Glu Glu Ala Gly Thr Glu Ile Ser Ile Pro Arg Ala Leu<br>355 360 365     | 1104 |
| gac cgc cag gcc gca ctc tta caa ata caa gaa ttt atg atc acc tgc<br>Asp Arg Gln Ala Ala Leu Leu Gln Ile Gln Glu Phe Met Ile Thr Cys<br>370 375 380     | 1152 |
| ctc tca caa aca cca cca cgc acc aca ttg ctg cta tat ccc aca gcc<br>Leu Ser Gln Thr Pro Pro Arg Thr Thr Leu Leu Leu Tyr Pro Thr Ala<br>385 390 395 400 | 1200 |
| gtg gac ctg gcc aaa cga gcc ctc tgg acg ccg gac cag atc acc gac<br>Val Asp Leu Ala Lys Arg Ala Leu Trp Thr Pro Asp Gln Ile Thr Asp<br>405 410 415     | 1248 |
| atc acc agc ctc gta cgc ctg gtc tac ata ctt tct aaa cag aat cag<br>Ile Thr Ser Leu Val Arg Leu Val Tyr Ile Leu Ser Lys Gln Asn Gln<br>420 425 430     | 1296 |
| caa cat ctc att ccc cag tgg gca cta cga cag atc gcc gac ttt gcc<br>Gln His Leu Ile Pro Gln Trp Ala Leu Arg Gln Ile Ala Asp Phe Ala<br>435 440 445     | 1344 |
| cta caa tta cac aaa acg cac ctg gcc tct ttt ctt tca gcc ttc gcg<br>Leu Gln Leu His Lys Thr His Leu Ala Ser Phe Leu Ser Ala Phe Ala<br>450 455 460     | 1392 |
| cgc caa gaa ctc tac ctc atg ggc agc ctc gtc cac tcc atg ttg gta   | 1440 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg | Gln | Glu | Leu | Tyr | Leu | Met | Gly | Ser | Leu | Val | His | Ser | Met | Leu | Val |      |
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |      |
| cat | acg | acg | gag | aga | cgc | gaa | atc | ttc | atc | gta | gaa | acg | ggc | ctc | tgt | 1488 |
| His | Thr | Thr | Glu | Arg | Arg | Glu | Ile | Phe | Ile | Val | Glu | Thr | Gly | Leu | Cys |      |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |      |
| tca | ttg | gcc | gag | cta | tca | cac | ttt | acg | cag | ttg | cta | gct | cat | ccg | cac | 1536 |
| Ser | Leu | Ala | Glu | Leu | Ser | His | Phe | Thr | Gln | Leu | Leu | Ala | His | Pro | His |      |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |     |     |      |
| cac | gaa | tac | ctc | agc | gac | ctg | tac | aca | ccc | tgt | tcc | agt | agc | ggg | cga | 1584 |
| His | Glu | Tyr | Leu | Ser | Asp | Leu | Tyr | Thr | Pro | Cys | Ser | Ser | Ser | Gly | Arg |      |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |      |
| cgc | gat | cac | tcg | ctc | gaa | cgc | ctc | acg | cgt | ctc | ttc | ccc | gat | gcc | acc | 1632 |
| Arg | Asp | His | Ser | Leu | Glu | Arg | Leu | Thr | Arg | Leu | Phe | Pro | Asp | Ala | Thr |      |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |      |
| gtt | cct | gct | acc | gtt | ccc | gcc | gcc | ctc | tcc | atc | cta | tct | acc | atg | caa | 1680 |
| Val | Pro | Ala | Thr | Val | Pro | Ala | Ala | Leu | Ser | Ile | Leu | Ser | Thr | Met | Gln |      |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |      |
| cca | agc | acg | ctg | gaa | acc | ttc | ccc | gac | ctg | ttt | tgt | ctg | ccg | ctc | ggc | 1728 |
| Pro | Ser | Thr | Leu | Glu | Thr | Phe | Pro | Asp | Leu | Phe | Cys | Leu | Pro | Leu | Gly |      |
|     |     |     | 565 |     |     |     |     |     | 570 |     |     |     |     | 575 |     |      |
| gaa | tcc | ttc | tcc | gcg | cta | acc | gtc | tcc | gaa | cac | gtc | agt | tat | gtc | gta | 1776 |
| Glu | Ser | Phe | Ser | Ala | Leu | Thr | Val | Ser | Glu | His | Val | Ser | Tyr | Val | Val |      |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |      |
| aca | aac | cag | tac | ctg | atc | aaa | ggg | atc | tcc | tac | cct | gtc | tcc | acc | acc | 1824 |
| Thr | Asn | Gln | Tyr | Leu | Ile | Lys | Gly | Ile | Ser | Tyr | Pro | Val | Ser | Thr | Thr |      |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |      |
| gtc | gta | ggc | cag | agc | ctc | atc | atc | acc | caa | acg | gac | agt | caa | act | aaa | 1872 |
| Val | Val | Gly | Gln | Ser | Leu | Ile | Ile | Thr | Gln | Thr | Asp | Ser | Gln | Thr | Lys |      |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |      |
| tgc | gaa | cta | acg | cgc | aac | atg | cac | acc | aca | cac | agc | atc | aca | gcg | gcg | 1920 |
| Cys | Glu | Leu | Thr | Arg | Asn | Met | His | Thr | Thr | His | Ser | Ile | Thr | Ala | Ala |      |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |      |
| ctc | aac | att | tca | cta | gaa | aac | tgc | gcc | ttt | tgc | caa | agc | gcc | ctg | cta | 1968 |
| Leu | Asn | Ile | Ser | Leu | Glu | Asn | Cys | Ala | Phe | Cys | Gln | Ser | Ala | Leu | Leu |      |
|     |     |     |     | 645 |     |     |     |     | 650 |     |     |     |     | 655 |     |      |
| gaa | tac | gac | gac | acg | caa | ggc | gtc | atc | aac | atc | atg | tac | atg | cac | gac | 2016 |
| Glu | Tyr | Asp | Asp | Thr | Gln | Gly | Val | Ile | Asn | Ile | Met | Tyr | Met | His | Asp |      |
|     |     |     | 660 |     |     |     |     | 665 |     |     |     |     | 670 |     |     |      |
| tcg | gac | gac | gtc | ctt | ttc | gcc | ctg | gat | ccc | tac | aac | gaa | gtg | gtg | gtc | 2064 |
| Ser | Asp | Asp | Val | Leu | Phe | Ala | Leu | Asp | Pro | Tyr | Asn | Glu | Val | Val | Val |      |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |      |
| tca | tct | ccg | cga | act | cac | tac | ctc | atg | ctt | ttg | aaa | aac | ggg | acg | gtc | 2112 |
| Ser | Ser | Pro | Arg | Thr | His | Tyr | Leu | Met | Leu | Leu | Lys | Asn | Gly | Thr | Val |      |

| 690   | 695 | 700 |      |
|---|-----|-----|------|
| cta gaa gta act gac gtc gtc gtg gac gcc acc gac agt cgt ctc ctc |     |     | 2160 |
| Leu Glu Val Thr Asp Val Val Val Asp Ala Thr Asp Ser Arg Leu Leu |     |     |      |
| 705   | 710 | 715 | 720  |
| atg atg tcc gtc tac gcg cta tcg gcc atc atc ggc atc tat ctg ctc |     |     | 2208 |
| Met Met Ser Val Tyr Ala Leu Ser Ala Ile Ile Gly Ile Tyr Leu Leu |     |     |      |
|   | 725 | 730 | 735  |
| tac cgc atg ctc aag aca tgc tga                                 |     |     | 2232 |
| Tyr Arg Met Leu Lys Thr Cys                                     |     |     |      |
| 740   |     |     |      |

&lt;210&gt; 8

&lt;211&gt; 743

&lt;212&gt; PRT

&lt;213&gt; Human cytomegalovirus

&lt;400&gt; 8

|   |     |     |     |
|---|-----|-----|-----|
| Met Arg Pro Gly Leu Pro Pro Tyr Leu Thr Val Phe Thr Val Tyr Leu |     |     |     |
| 1   | 5   | 10  | 15  |
| Leu Ser His Leu Pro Ser Gln Arg Tyr Gly Ala Asp Ala Ala Ser Glu |     |     |     |
| 20  | 25  | 30  |     |
| Ala Leu Asp Pro His Ala Phe His Leu Leu Leu Asn Thr Tyr Gly Arg |     |     |     |
| 35  | 40  | 45  |     |
| Pro Ile Arg Phe Leu Arg Glu Asn Thr Thr Gln Cys Thr Tyr Asn Ser |     |     |     |
| 50  | 55  | 60  |     |
| Ser Leu Arg Asn Ser Thr Val Val Arg Glu Asn Ala Ile Ser Phe Asn |     |     |     |
| 65  | 70  | 75  | 80  |
| Phe Phe Gln Ser Tyr Asn Gln Tyr Tyr Val Phe His Met Pro Arg Cys |     |     |     |
| 85  | 90  | 95  |     |
| Leu Phe Ala Gly Pro Leu Ala Glu Gln Phe Leu Asn Gln Val Asp Leu |     |     |     |
| 100   | 105 | 110 |     |
| Thr Glu Thr Leu Glu Arg Tyr Gln Gln Arg Leu Asn Thr Tyr Ala Leu |     |     |     |
| 115   | 120 | 125 |     |
| Val Ser Lys Asp Leu Ala Ser Tyr Arg Ser Phe Ser Gln Gln Leu Lys |     |     |     |
| 130   | 135 | 140 |     |
| Ala Gln Asp Ser Leu Gly Gln Gln Pro Thr Thr Val Pro Pro Pro Ile |     |     |     |
| 145   | 150 | 155 | 160 |
| Asp Leu Ser Ile Pro His Val Trp Met Pro Pro Gln Thr Thr Pro His |     |     |     |
| 165   | 170 | 175 |     |
| Asp Trp Lys Gly Ser His Thr Thr Ser Gly Leu His Arg Pro His Phe |     |     |     |
| 180   | 185 | 190 |     |
| Asn Gln Thr Cys Ile Leu Phe Asp Gly His Asp Leu Leu Phe Ser Thr |     |     |     |
| 195   | 200 | 205 |     |
| Val Thr Pro Cys Leu His Gln Gly Phe Tyr Leu Met Asp Glu Leu Arg |     |     |     |
| 210   | 215 | 220 |     |
| Tyr Val Lys Ile Thr Leu Thr Glu Asp Phe Phe Val Val Thr Val Ser |     |     |     |
| 225   | 230 | 235 | 240 |
| Ile Asp Asp Asp Thr Pro Met Leu Leu Ile Phe Gly His Leu Pro Arg |     |     |     |
| 245   | 250 | 255 |     |
| Val Leu Phe Lys Ala Pro Tyr Gln Arg Asp Asn Phe Ile Leu Arg Gln |     |     |     |
| 260   | 265 | 270 |     |
| Thr Glu Lys His Glu Leu Leu Val Leu Val Lys Lys Ala Gln Leu Asn |     |     |     |
| 275   | 280 | 285 |     |





740

<210> 9  
 <211> 921  
 <212> DNA  
 <213> Human cytomegalovirus

<220>  
 <221> CDS  
 <222> (1)...(918)

<400> 9  
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 Arg Phe Arg Asp Arg Arg Pro Glu Arg Gln Leu Ser Ala Pro Thr Gly  
 1 5 10 15  
 tcc tta ccg tca cac tct cat cgt gcc gca gac ttg atg tgc cgc cgc 96  
 Ser Leu Pro Ser His Ser His Arg Ala Ala Asp Leu Met Cys Arg Arg  
 20 25 30  
 ccg gat tgc ggc ttc tct ttc tca cct gga ccg gtg gta ctg ctg tgg 144  
 Pro Asp Cys Gly Phe Ser Phe Ser Pro Gly Pro Val Val Leu Leu Trp  
 35 40 45  
 tgt tgc ctt ctg ctg ccc att gtt tcc tca gtc gcc gtc agc gtc gct 192  
 Cys Cys Leu Leu Leu Pro Ile Val Ser Ser Val Ala Val Ser Val Ala  
 50 55 60  
 cct acc gcc gcc gag aaa gtc ccc gcg gag tgc ccc gaa cta acg cgt 240  
 Pro Thr Ala Ala Glu Lys Val Pro Ala Glu Cys Pro Glu Leu Thr Arg  
 65 70 75 80  
 cga tgc ctg ttg ggt gag gtg ttt cag ggt gac aag tat gaa agt tgg 288  
 Arg Cys Leu Leu Gly Glu Val Phe Gln Gly Asp Lys Tyr Glu Ser Trp  
 85 90 95  
 ctg cgc ccg ttg gtg aat gtt acc aga cgc gat ggc ccg cta tcg caa 336  
 Leu Arg Pro Leu Val Asn Val Thr Arg Arg Asp Gly Pro Leu Ser Gln  
 100 105 110  
 ctt att cgt tac cgt ccc gtt acg ccg gag gcc gcc aac tcc gtg ctg 384  
 Leu Ile Arg Tyr Arg Pro Val Thr Pro Glu Ala Ala Asn Ser Val Leu  
 115 120 125  
 ttg gac gat gct ttc ctg gac act ctg gcc ctg ctg tac aac aat ccg 432  
 Leu Asp Asp Ala Phe Leu Asp Thr Leu Ala Leu Leu Tyr Asn Asn Pro  
 130 135 140  
 gat caa ttg cgg gcc ctg ctg acg ctg ttg agc tcg gac aca gcg ccg 480  
 Asp Gln Leu Arg Ala Leu Leu Thr Leu Leu Ser Ser Asp Thr Ala Pro  
 145 150 155 160  
 cgc tgg atg acg gtg atg cgc ggc tac agc gag tgc ggc gat ggc tcg 528  
 Arg Trp Met Thr Val Met Arg Gly Tyr Ser Glu Cys Gly Asp Gly Ser  
 165 170 175  
 ccg gcc gtg tac acg tgc gtg gac gac ctg tgc cgc ggc tac gac ctc 576

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Pro | Ala | Val | Tyr | Thr | Cys | Val | Asp | Asp | Leu | Cys | Arg | Gly | Tyr | Asp | Leu |     |  |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |  |
| acg | cga | ctg | tca | tac | ggg | cgc | agc | atc | ttc | acg | gaa | cac | gtg | tta | ggc | 624 |  |
| Thr | Arg | Leu | Ser | Tyr | Gly | Arg | Ser | Ile | Phe | Thr | Glu | His | Val | Leu | Gly |     |  |
|     |     | 195 |     |     |     |     | 200 |     |     |     | 205 |     |     |     |     |     |  |
| ttc | gag | ctg | gtg | cca | ccg | tct | ctc | ttt | aac | gtg | gtg | gtg | gcc | ata | cgc | 672 |  |
| Phe | Glu | Leu | Val | Pro | Pro | Ser | Leu | Phe | Asn | Val | Val | Val | Ala | Ile | Arg |     |  |
|     | 210 |     |     |     |     | 215 |     |     |     | 220 |     |     |     |     |     |     |  |
| aac | gaa | gcc | acg | cgt | acc | aac | cgc | gcc | gtg | cgt | ctg | ccc | gtg | agc | acc | 720 |  |
| Asn | Glu | Ala | Thr | Arg | Thr | Asn | Arg | Ala | Val | Arg | Leu | Pro | Val | Ser | Thr |     |  |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |     |  |
| gct | gcc | gcg | ccc | gag | ggc | atc | aca | ctc | ttt | tac | ggc | ctg | tac | aac | gca | 768 |  |
| Ala | Ala | Ala | Pro | Glu | Gly | Ile | Thr | Leu | Phe | Tyr | Gly | Leu | Tyr | Asn | Ala |     |  |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |     |  |
| gtg | aag | gaa | ttc | tgc | ctg | cgt | cac | cag | ctg | gac | ccg | ccg | cta | cta | cgc | 816 |  |
| Val | Lys | Glu | Phe | Cys | Leu | Arg | His | Gln | Leu | Asp | Pro | Pro | Leu | Leu | Arg |     |  |
|     |     | 260 |     |     |     |     | 265 |     |     |     |     |     | 270 |     |     |     |  |
| cac | cta | gat | aaa | tac | tac | gcc | gga | ctg | ccg | ccc | gag | ctg | aag | cag | acg | 864 |  |
| His | Leu | Asp | Lys | Tyr | Tyr | Ala | Gly | Leu | Pro | Pro | Glu | Leu | Lys | Gln | Thr |     |  |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |  |
| cgc | gtc | aac | ctg | ccg | gct | cac | tcg | cgc | tat | ggc | cct | caa | gca | gtg | gat | 912 |  |
| Arg | Val | Asn | Leu | Pro | Ala | His | Ser | Arg | Tyr | Gly | Pro | Gln | Ala | Val | Asp |     |  |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |  |
| gct | cgc | taa |     |     |     |     |     |     |     |     |     |     |     |     |     | 921 |  |
| Ala | Arg |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| 305 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |

<210> 10  
 <211> 306  
 <212> PRT  
 <213> Human cytomegalovirus

<400> 10  
 Arg Phe Arg Asp Arg Arg Pro Glu Arg Gln Leu Ser Ala Pro Thr Gly  
 1 5 10 15  
 Ser Leu Pro Ser His Ser His Arg Ala Ala Asp Leu Met Cys Arg Arg  
 20 25 30  
 Pro Asp Cys Gly Phe Ser Phe Ser Pro Gly Pro Val Val Leu Leu Trp  
 35 40 45  
 Cys Cys Leu Leu Leu Pro Ile Val Ser Ser Val Ala Val Ser Val Ala  
 50 55 60  
 Pro Thr Ala Ala Glu Lys Val Pro Ala Glu Cys Pro Glu Leu Thr Arg  
 65 70 75 80  
 Arg Cys Leu Leu Gly Glu Val Phe Gln Gly Asp Lys Tyr Glu Ser Trp  
 85 90 95  
 Leu Arg Pro Leu Val Asn Val Thr Arg Arg Asp Gly Pro Leu Ser Gln  
 100 105 110  
 Leu Ile Arg Tyr Arg Pro Val Thr Pro Glu Ala Ala Asn Ser Val Leu

|   |     |     |
|---|-----|-----|
| 115   | 120 | 125 |
| Leu Asp Asp Ala Phe Leu Asp Thr Leu Ala Leu Leu Tyr Asn Asn Pro |     |     |
| 130   | 135 | 140 |
| Asp Gln Leu Arg Ala Leu Leu Thr Leu Leu Ser Ser Asp Thr Ala Pro |     |     |
| 145   | 150 | 155 |
| Arg Trp Met Thr Val Met Arg Gly Tyr Ser Glu Cys Gly Asp Gly Ser |     |     |
| 165   | 170 | 175 |
| Pro Ala Val Tyr Thr Cys Val Asp Asp Leu Cys Arg Gly Tyr Asp Leu |     |     |
| 180   | 185 | 190 |
| Thr Arg Leu Ser Tyr Gly Arg Ser Ile Phe Thr Glu His Val Leu Gly |     |     |
| 195   | 200 | 205 |
| Phe Glu Leu Val Pro Pro Ser Leu Phe Asn Val Val Val Ala Ile Arg |     |     |
| 210   | 215 | 220 |
| Asn Glu Ala Thr Arg Thr Asn Arg Ala Val Arg Leu Pro Val Ser Thr |     |     |
| 225   | 230 | 235 |
| Ala Ala Ala Pro Glu Gly Ile Thr Leu Phe Tyr Gly Leu Tyr Asn Ala |     |     |
| 245   | 250 | 255 |
| Val Lys Glu Phe Cys Leu Arg His Gln Leu Asp Pro Pro Leu Leu Arg |     |     |
| 260   | 265 | 270 |
| His Leu Asp Lys Tyr Tyr Ala Gly Leu Pro Pro Glu Leu Lys Gln Thr |     |     |
| 275   | 280 | 285 |
| Arg Val Asn Leu Pro Ala His Ser Arg Tyr Gly Pro Gln Ala Val Asp |     |     |
| 290   | 295 | 300 |
| Ala Arg   |     |     |
| 305   |     |     |

&lt;210&gt; 11

&lt;211&gt; 1401

&lt;212&gt; DNA

&lt;213&gt; Human cytomegalovirus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)...(1398)

&lt;400&gt; 11

|   |     |
|---|-----|
| atg ggg aga aaa gag atg atg gtg aga gac gtc cct aag atg gtg ttt | 48  |
| Met Gly Arg Lys Glu Met Met Val Arg Asp Val Pro Lys Met Val Phe |     |
| 1 5 10 15   |     |
| cta ata tct ata tct ttc ttg ctt gtt tct ttc ata aac tgt aaa gtt | 96  |
| Leu Ile Ser Ile Ser Phe Leu Leu Val Ser Phe Ile Asn Cys Lys Val |     |
| 20 25 30  |     |
| atg tca aaa gcg ctt tat aat cgt cct tgg agg ggc ttg gta ctg tct | 144 |
| Met Ser Lys Ala Leu Tyr Asn Arg Pro Trp Arg Gly Leu Val Leu Ser |     |
| 35 40 45  |     |
| aag ata ggc aaa tat aaa tta gat cag ctt aag tta gaa att ttg aga | 192 |
| Lys Ile Gly Lys Tyr Lys Leu Asp Gln Leu Lys Leu Glu Ile Leu Arg |     |
| 50 55 60  |     |
| caa cta gaa acg act att tct aca aaa tac aat gta agt aaa caa ccg | 240 |
| Gln Leu Glu Thr Thr Ile Ser Thr Lys Tyr Asn Val Ser Lys Gln Pro |     |
| 65 70 75 80   |     |
| gtt aaa aat ctc act atg aac atg aca gag ttt cca caa tac tac att | 288 |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Lys | Asn | Leu | Thr | Met | Asn | Met | Thr | Glu | Phe | Pro | Gln | Tyr | Tyr | Ile |     |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| tta | gcg | ggc | ccc | att | cag | aat | tat | agt | ata | acc | tat | ctg | tgg | ttt | gat | 336 |
| Leu | Ala | Gly | Pro | Ile | Gln | Asn | Tyr | Ser | Ile | Thr | Tyr | Leu | Trp | Phe | Asp |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |
| ttt | tat | agt | acc | cag | ctt | aga | aaa | ccc | gca | aaa | tac | gtt | tac | tca | cag | 384 |
| Phe | Tyr | Ser | Thr | Gln | Leu | Arg | Lys | Pro | Ala | Lys | Tyr | Val | Tyr | Ser | Gln |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |
| tac | aat | cat | acg | gct | aaa | acg | ata | aca | ttc | aga | ccc | cca | cct | tgt | ggc | 432 |
| Tyr | Asn | His | Thr | Ala | Lys | Thr | Ile | Thr | Phe | Arg | Pro | Pro | Pro | Cys | Gly |     |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |
| act | gtg | cct | tcc | atg | act | tgt | ctt | tcc | gaa | atg | cta | aac | gtt | tcc | aaa | 480 |
| Thr | Val | Pro | Ser | Met | Thr | Cys | Leu | Ser | Glu | Met | Leu | Asn | Val | Ser | Lys |     |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     |     | 160 |     |
| cgt | aat | gat | act | ggc | gaa | caa | ggc | tgc | ggc | aat | ttc | acc | acg | ttc | aac | 528 |
| Arg | Asn | Asp | Thr | Gly | Glu | Gln | Gly | Cys | Gly | Asn | Phe | Thr | Thr | Phe | Asn |     |
|     |     |     | 165 |     |     |     |     | 170 |     |     |     |     |     | 175 |     |     |
| ccc | atg | ttt | ttc | aat | gta | ccg | cgt | tgg | aac | acc | aaa | ttg | tac | gtg | ggc | 576 |
| Pro | Met | Phe | Phe | Asn | Val | Pro | Arg | Trp | Asn | Thr | Lys | Leu | Tyr | Val | Gly |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |
| ccg | act | aag | gtt | aac | gta | gat | agt | caa | acg | att | tat | ttt | cta | ggc | tta | 624 |
| Pro | Thr | Lys | Val | Asn | Val | Asp | Ser | Gln | Thr | Ile | Tyr | Phe | Leu | Gly | Leu |     |
|     |     | 195 |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |     |
| acc | gcc | ctg | ctt | tta | cgt | tac | gca | caa | cgc | aac | tgt | aca | cac | agt | ttc | 672 |
| Thr | Ala | Leu | Leu | Leu | Arg | Tyr | Ala | Gln | Arg | Asn | Cys | Thr | His | Ser | Phe |     |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |
| tac | ctg | gtt | aac | gcc | atg | agc | cgg | aat | cta | ttt | cgc | gtc | ccc | aag | tat | 720 |
| Tyr | Leu | Val | Asn | Ala | Met | Ser | Arg | Asn | Leu | Phe | Arg | Val | Pro | Lys | Tyr |     |
| 225 |     |     |     |     | 230 |     |     |     | 235 |     |     |     |     |     | 240 |     |
| att | aac | ggc | acc | aag | tta | aaa | aac | act | atg | cga | aaa | cta | aaa | cgt | aaa | 768 |
| Ile | Asn | Gly | Thr | Lys | Leu | Lys | Asn | Thr | Met | Arg | Lys | Leu | Lys | Arg | Lys |     |
|     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     | 255 |     |     |
| caa | gcg | ccc | gtt | aag | gaa | caa | ttc | gaa | aaa | aaa | gct | aag | aaa | act | cag | 816 |
| Gln | Ala | Pro | Val | Lys | Glu | Gln | Phe | Glu | Lys | Lys | Ala | Lys | Lys | Thr | Gln |     |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |     |
| agt | act | act | acg | cca | tac | ttt | tcc | tat | aca | acg | tct | gcc | gct | ctc | aac | 864 |
| Ser | Thr | Thr | Thr | Pro | Tyr | Phe | Ser | Tyr | Thr | Thr | Ser | Ala | Ala | Leu | Asn |     |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |     |
| gtc | act | act | aac | gtg | act | tat | agt | att | act | acc | gcc | gca | agg | cgg | gtt | 912 |
| Val | Thr | Thr | Asn | Val | Thr | Tyr | Ser | Ile | Thr | Thr | Ala | Ala | Arg | Arg | Val |     |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |     |
| tcc | acg | tct | aca | att | gct | tat | cgt | cct | gat | agc | agc | ttt | atg | aag | tcc | 960 |
| Ser | Thr | Ser | Thr | Ile | Ala | Tyr | Arg | Pro | Asp | Ser | Ser | Phe | Met | Lys | Ser |     |

| 305   | 310 | 315 | 320 |      |
|---|-----|-----|-----|------|
| att atg gcc aca cag tta agg gac cta gca acg tgg gtg tat acc act |     |     |     | 1008 |
| Ile Met Ala Thr Gln Leu Arg Asp Leu Ala Thr Trp Val Tyr Thr Thr | 325 | 330 | 335 |      |
| cta cgt tac cgg caa aat cct ttt tgt gaa cca agc cgc aac cga acc |     |     |     | 1056 |
| Leu Arg Tyr Arg Gln Asn Pro Phe Cys Glu Pro Ser Arg Asn Arg Thr | 340 | 345 | 350 |      |
| gcc gtg tca gaa ttt atg aaa aac acg cac gta cta atc cgt aac gaa |     |     |     | 1104 |
| Ala Val Ser Glu Phe Met Lys Asn Thr His Val Leu Ile Arg Asn Glu | 355 | 360 | 365 |      |
| acg ccg tac act att tac ggt act ctc gac atg agc tcc tta tat tac |     |     |     | 1152 |
| Thr Pro Tyr Thr Ile Tyr Gly Thr Leu Asp Met Ser Ser Leu Tyr Tyr | 370 | 375 | 380 |      |
| aac gaa acc atg ttc gtg gaa aac aaa aca gct tcc gat agt aac aaa |     |     |     | 1200 |
| Asn Glu Thr Met Phe Val Glu Asn Lys Thr Ala Ser Asp Ser Asn Lys | 385 | 390 | 400 |      |
| act aca cct acg tca cca tca atg ggg ttt cag aga aca ttt ata gat |     |     |     | 1248 |
| Thr Thr Pro Thr Ser Pro Ser Met Gly Phe Gln Arg Thr Phe Ile Asp | 405 | 410 | 415 |      |
| ccc ctg tgg gac tat cta gac tcg ctg ctg ttt cta gat gag att cgt |     |     |     | 1296 |
| Pro Leu Trp Asp Tyr Leu Asp Ser Leu Leu Phe Leu Asp Glu Ile Arg | 420 | 425 | 430 |      |
| aac ttt agc ctc cgg tca ccc acg tat gta aac ctt acc ccg ccg gaa |     |     |     | 1344 |
| Asn Phe Ser Leu Arg Ser Pro Thr Tyr Val Asn Leu Thr Pro Pro Glu | 435 | 440 | 445 |      |
| cac cgc cgg gct gta aat ctg tcc acc ctc aat agc ctt tgg tgg tgg |     |     |     | 1392 |
| His Arg Arg Ala Val Asn Leu Ser Thr Leu Asn Ser Leu Trp Trp Trp | 450 | 455 | 460 |      |
| ttg cag taa   |     |     |     | 1401 |
| Leu Gln   |     |     |     |      |
| 465   |     |     |     |      |

&lt;210&gt; 12

&lt;211&gt; 466

&lt;212&gt; PRT

&lt;213&gt; Human cytomegalovirus

&lt;400&gt; 12

|   |    |    |    |  |
|---|----|----|----|--|
| Met Gly Arg Lys Glu Met Met Val Arg Asp Val Pro Lys Met Val Phe |    |    |    |  |
| 1   | 5  | 10 | 15 |  |
| Leu Ile Ser Ile Ser Phe Leu Leu Val Ser Phe Ile Asn Cys Lys Val |    |    |    |  |
| 20  | 25 | 30 |    |  |
| Met Ser Lys Ala Leu Tyr Asn Arg Pro Trp Arg Gly Leu Val Leu Ser |    |    |    |  |
| 35  | 40 | 45 |    |  |
| Lys Ile Gly Lys Tyr Lys Leu Asp Gln Leu Lys Leu Glu Ile Leu Arg |    |    |    |  |
| 50  | 55 | 60 |    |  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gln | Leu | Glu | Thr | Thr | Ile | Ser | Thr | Lys | Tyr | Asn | Val | Ser | Lys | Gln | Pro |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Val | Lys | Asn | Leu | Thr | Met | Asn | Met | Thr | Glu | Phe | Pro | Gln | Tyr | Tyr | Ile |
|     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     | 95  |     |
| Leu | Ala | Gly | Pro | Ile | Gln | Asn | Tyr | Ser | Ile | Thr | Tyr | Leu | Trp | Phe | Asp |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Phe | Tyr | Ser | Thr | Gln | Leu | Arg | Lys | Pro | Ala | Lys | Tyr | Val | Tyr | Ser | Gln |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Tyr | Asn | His | Thr | Ala | Lys | Thr | Ile | Thr | Phe | Arg | Pro | Pro | Pro | Cys | Gly |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Thr | Val | Pro | Ser | Met | Thr | Cys | Leu | Ser | Glu | Met | Leu | Asn | Val | Ser | Lys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Arg | Asn | Asp | Thr | Gly | Glu | Gln | Gly | Cys | Gly | Asn | Phe | Thr | Thr | Phe | Asn |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Pro | Met | Phe | Phe | Asn | Val | Pro | Arg | Trp | Asn | Thr | Lys | Leu | Tyr | Val | Gly |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Pro | Thr | Lys | Val | Asn | Val | Asp | Ser | Gln | Thr | Ile | Tyr | Phe | Leu | Gly | Leu |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |
| Thr | Ala | Leu | Leu | Leu | Arg | Tyr | Ala | Gln | Arg | Asn | Cys | Thr | His | Ser | Phe |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Tyr | Leu | Val | Asn | Ala | Met | Ser | Arg | Asn | Leu | Phe | Arg | Val | Pro | Lys | Tyr |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ile | Asn | Gly | Thr | Lys | Leu | Lys | Asn | Thr | Met | Arg | Lys | Leu | Lys | Arg | Lys |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Gln | Ala | Pro | Val | Lys | Glu | Gln | Phe | Glu | Lys | Lys | Ala | Lys | Lys | Thr | Gln |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Ser | Thr | Thr | Thr | Pro | Tyr | Phe | Ser | Tyr | Thr | Thr | Ser | Ala | Ala | Leu | Asn |
|     |     |     | 275 |     |     |     |     | 280 |     |     |     | 285 |     |     |     |
| Val | Thr | Thr | Asn | Val | Thr | Tyr | Ser | Ile | Thr | Thr | Ala | Ala | Arg | Arg | Val |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Ser | Thr | Ser | Thr | Ile | Ala | Tyr | Arg | Pro | Asp | Ser | Ser | Phe | Met | Lys | Ser |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| Ile | Met | Ala | Thr | Gln | Leu | Arg | Asp | Leu | Ala | Thr | Trp | Val | Tyr | Thr | Thr |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Leu | Arg | Tyr | Arg | Gln | Asn | Pro | Phe | Cys | Glu | Pro | Ser | Arg | Asn | Arg | Thr |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Ala | Val | Ser | Glu | Phe | Met | Lys | Asn | Thr | His | Val | Leu | Ile | Arg | Asn | Glu |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Thr | Pro | Tyr | Thr | Ile | Tyr | Gly | Thr | Leu | Asp | Met | Ser | Ser | Leu | Tyr | Tyr |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Asn | Glu | Thr | Met | Phe | Val | Glu | Asn | Lys | Thr | Ala | Ser | Asp | Ser | Asn | Lys |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Thr | Thr | Pro | Thr | Ser | Pro | Ser | Met | Gly | Phe | Gln | Arg | Thr | Phe | Ile | Asp |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Pro | Leu | Trp | Asp | Tyr | Leu | Asp | Ser | Leu | Leu | Phe | Leu | Asp | Glu | Ile | Arg |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Asn | Phe | Ser | Leu | Arg | Ser | Pro | Thr | Tyr | Val | Asn | Leu | Thr | Pro | Pro | Glu |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| His | Arg | Arg | Ala | Val | Asn | Leu | Ser | Thr | Leu | Asn | Ser | Leu | Trp | Trp | Trp |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Leu | Gln |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 465 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |

&lt;210&gt; 13

&lt;211&gt; 1686

&lt;212&gt; DNA

&lt;213&gt; Human cytomegalovirus

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)...(1683)

&lt;400&gt; 13

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| atg | gag | tcg | cgc | ggt | cgc | cgt | tgt | ccc | gaa | atg | ata | tcc | gta | ctg | ggt | 48 |
| Met | Glu | Ser | Arg | Gly | Arg | Arg | Cys | Pro | Glu | Met | Ile | Ser | Val | Leu | Gly |    |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| ccc | att | tcg | ggg | cac | gtg | ctg | aaa | gcc | gtg | ttt | agt | cgc | ggc | gat | acg | 96 |
| Pro | Ile | Ser | Gly | His | Val | Leu | Lys | Ala | Val | Phe | Ser | Arg | Gly | Asp | Thr |    |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |    |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cgc | gtg | ctg | cgc | cac | gag | acg | cga | ctc | ctg | cag | acg | ggt | atc | cac | gta | 144 |
| Pro | Val | Leu | Pro | His | Glu | Thr | Arg | Leu | Leu | Gln | Thr | Gly | Ile | His | Val |     |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cgc | gtg | agc | cag | ccc | tcg | ctg | atc | ttg | gta | tcg | cag | tac | acg | ccc | gac | 192 |
| Arg | Val | Ser | Gln | Pro | Ser | Leu | Ile | Leu | Val | Ser | Gln | Tyr | Thr | Pro | Asp |     |
|     | 50  |     |     |     |     | 55  |     |     |     | 60  |     |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tcg | acg | cca | tgc | cac | cgc | ggc | gac | aat | cag | ctg | cag | gtg | cag | cac | acg | 240 |
| Ser | Thr | Pro | Cys | His | Arg | Gly | Asp | Asn | Gln | Leu | Gln | Val | Gln | His | Thr |     |
| 65  |     |     |     |     | 70  |     |     |     | 75  |     |     |     |     | 80  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| tac | ttt | acg | ggc | agc | gag | gtg | gag | aac | gtg | tcg | gtc | aac | gtg | cac | aac | 288 |
| Tyr | Phe | Thr | Gly | Ser | Glu | Val | Glu | Asn | Val | Ser | Val | Asn | Val | His | Asn |     |
|     |     |     |     | 85  |     |     |     | 90  |     |     |     |     |     | 95  |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ccc | acg | ggc | cga | agc | atc | tgc | ccc | agc | cag | gag | ccc | atg | tcg | atc | tat | 336 |
| Pro | Thr | Gly | Arg | Ser | Ile | Cys | Pro | Ser | Gln | Glu | Pro | Met | Ser | Ile | Tyr |     |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtg | tac | gcg | ctg | ccg | ctc | aag | atg | ctg | aac | atc | ccc | agc | atc | aac | gtg | 384 |
| Val | Tyr | Ala | Leu | Pro | Leu | Lys | Met | Leu | Asn | Ile | Pro | Ser | Ile | Asn | Val |     |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| cac | cac | tac | ccg | tcg | gcg | gcc | gag | cgc | aaa | cac | cga | cac | ctg | ccc | gta | 432 |
| His | His | Tyr | Pro | Ser | Ala | Ala | Glu | Arg | Lys | His | Arg | His | Leu | Pro | Val |     |
|     |     | 130 |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gct | gac | gct | gtg | att | cac | gcg | tcg | ggc | aag | cag | atg | tgg | cag | gcg | cgt | 480 |
| Ala | Asp | Ala | Val | Ile | His | Ala | Ser | Gly | Lys | Gln | Met | Trp | Gln | Ala | Arg |     |
| 145 |     |     |     |     | 150 |     |     |     | 155 |     |     |     |     | 160 |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| ctc | acg | gtc | tcg | gga | ctg | gcc | tgg | acg | cgt | cag | cag | aac | cag | tgg | aaa | 528 |
| Leu | Thr | Val | Ser | Gly | Leu | Ala | Trp | Thr | Arg | Gln | Gln | Asn | Gln | Trp | Lys |     |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gag | ccc | gac | gtc | tac | tac | acg | tca | gcg | ttc | gtg | ttt | ccc | acc | aag | gac | 576 |
| Glu | Pro | Asp | Val | Tyr | Tyr | Thr | Ser | Ala | Phe | Val | Phe | Pro | Thr | Lys | Asp |     |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| gtg | gca | ctg | cgg | cac | gtg | gtg | tgc | gcg | cac | gag | ctg | gtt | tgc | tcc | atg | 624 |
| Val | Ala | Leu | Arg | His | Val | Val | Cys | Ala | His | Glu | Leu | Val | Cys | Ser | Met |     |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |

|   |      |
|---|------|
| gag aac acg cgc gca acc aag atg cag gtg ata ggt gac cag tac gtc<br>Glu Asn Thr Arg Ala Thr Lys Met Gln Val Ile Gly Asp Gln Tyr Val<br>210 215 220     | 672  |
| aag gtg tac ctg gag tcc ttc tgc gag gac gtg ccc tcc ggc aag ctc<br>Lys Val Tyr Leu Glu Ser Phe Cys Glu Asp Val Pro Ser Gly Lys Leu<br>225 230 235 240 | 720  |
| ttt atg cac gtc acg ctg ggc tct gac gtg gaa gag gac ctg acg atg<br>Phe Met His Val Thr Leu Gly Ser Asp Val Glu Glu Asp Leu Thr Met<br>245 250 255     | 768  |
| acc cgc aac ccg caa ccc ttc atg cgc ccc cac gag cgc aac ggc ttt<br>Thr Arg Asn Pro Gln Pro Phe Met Arg Pro His Glu Arg Asn Gly Phe<br>260 265 270     | 816  |
| acg gtg ttg tgt ccc aaa aat atg ata atc aaa ccg ggc aag atc tcg<br>Thr Val Leu Cys Pro Lys Asn Met Ile Ile Lys Pro Gly Lys Ile Ser<br>275 280 285     | 864  |
| cac atc atg ctg gat gtg gct ttt acc tca cac gag cat ttt ggg ctg<br>His Ile Met Leu Asp Val Ala Phe Thr Ser His Glu His Phe Gly Leu<br>290 295 300     | 912  |
| ctg tgt ccc aag agc atc ccg ggc ctg agc atc tca ggt aac ctg ttg<br>Leu Cys Pro Lys Ser Ile Pro Gly Leu Ser Ile Ser Gly Asn Leu Leu<br>305 310 315 320 | 960  |
| atg aac ggg cag cag atc ttc ctg gag gta caa gcc ata cgc gag acc<br>Met Asn Gly Gln Gln Ile Phe Leu Glu Val Gln Ala Ile Arg Glu Thr<br>325 330 335     | 1008 |
| gtg gaa ctg cgt cag tac gat ccc gtg gct gcg ctc ttc ttt ttc gat<br>Val Glu Leu Arg Gln Tyr Asp Pro Val Ala Ala Leu Phe Phe Phe Asp<br>340 345 350     | 1056 |
| atc gac ttg ctg ctg cag cgc ggg cct cag tac agc gag cac ccc acc<br>Ile Asp Leu Leu Leu Gln Arg Gly Pro Gln Tyr Ser Glu His Pro Thr<br>355 360 365     | 1104 |
| ttc acc agc cag tat cgc atc cag ggc aag ctt gag tac cga cac acc<br>Phe Thr Ser Gln Tyr Arg Ile Gln Gly Lys Leu Glu Tyr Arg His Thr<br>370 375 380     | 1152 |
| tgg gac cgg cac gac gag ggt gcc gcc cag ggc gac gac gac gtc tgg<br>Trp Asp Arg His Asp Glu Gly Ala Ala Gln Gly Asp Asp Asp Val Trp<br>385 390 395 400 | 1200 |
| acc agc gga tcg gac tcc gac gaa gaa ctc gta acc acc gag cgc aag<br>Thr Ser Gly Ser Asp Ser Asp Glu Glu Leu Val Thr Thr Glu Arg Lys<br>405 410 415     | 1248 |
| acg ccc cgc gtc acc ggc ggc ggc gcc atg gcg ggc gcc tcc act tcc<br>Thr Pro Arg Val Thr Gly Gly Gly Ala Met Ala Gly Ala Ser Thr Ser<br>420 425 430     | 1296 |



gcg ggc cgc aaa cgc aaa tca gca tcc tcg gcg acg gcg tgc acg tcg 1344  
 Ala Gly Arg Lys Arg Lys Ser Ala Ser Ser Ala Thr Ala Cys Thr Ser  
 435 440 445  
  
 ggc gtt atg aca cgc ggc cgc ctt aag gcc gag tcc acc gtc gcg ccc 1392  
 Gly Val Met Thr Arg Gly Arg Leu Lys Ala Glu Ser Thr Val Ala Pro  
 450 455 460  
  
 gaa gag gac acc gac gag gat tcc gac aac gaa atc cac aat ccg gcc 1440  
 Glu Glu Asp Thr Asp Glu Asp Ser Asp Asn Glu Ile His Asn Pro Ala  
 465 470 475 480  
  
 gtg ttc acc tgg ccg ccc tgg cag gcc ggc atc ctg gcc cgc aac ctg 1488  
 Val Phe Thr Trp Pro Pro Trp Gln Ala Gly Ile Leu Ala Arg Asn Leu  
 485 490 495  
  
 gtg ccc atg gtg gct acg gtt cag ggt cag aat ctg aag tac cag gaa 1536  
 Val Pro Met Val Ala Thr Val Gln Gly Gln Asn Leu Lys Tyr Gln Glu  
 500 505 510  
  
 ttc ttc tgg gac gcc aac gac atc tac cgc atc ttc gcc gaa ttg gaa 1584  
 Phe Phe Trp Asp Ala Asn Asp Ile Tyr Arg Ile Phe Ala Glu Leu Glu  
 515 520 525  
  
 ggc gta tgg cag ccc gct gcg caa ccc aaa cgt cgc cgc cac cgg caa 1632  
 Gly Val Trp Gln Pro Ala Ala Gln Pro Lys Arg Arg Arg His Arg Gln  
 530 535 540  
  
 gac gcc ttg ccc ggg cca tgc atc gcc tcg acg ccc aaa aag cac cga 1680  
 Asp Ala Leu Pro Gly Pro Cys Ile Ala Ser Thr Pro Lys Lys His Arg  
 545 550 555 560  
  
 ggt tga 1686  
 Gly

<210> 14  
 <211> 561  
 <212> PRT  
 <213> Human cytomegalovirus

<400> 14  
 Met Glu Ser Arg Gly Arg Arg Cys Pro Glu Met Ile Ser Val Leu Gly  
 1 5 10 15  
 Pro Ile Ser Gly His Val Leu Lys Ala Val Phe Ser Arg Gly Asp Thr  
 20 25 30  
 Pro Val Leu Pro His Glu Thr Arg Leu Leu Gln Thr Gly Ile His Val  
 35 40 45  
 Arg Val Ser Gln Pro Ser Leu Ile Leu Val Ser Gln Tyr Thr Pro Asp  
 50 55 60  
 Ser Thr Pro Cys His Arg Gly Asp Asn Gln Leu Gln Val Gln His Thr  
 65 70 75 80  
 Tyr Phe Thr Gly Ser Glu Val Glu Asn Val Ser Val Asn Val His Asn  
 85 90 95  
 Pro Thr Gly Arg Ser Ile Cys Pro Ser Gln Glu Pro Met Ser Ile Tyr  
 100 105 110

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Tyr | Ala | Leu | Pro | Leu | Lys | Met | Leu | Asn | Ile | Pro | Ser | Ile | Asn | Val | 115 | 120 | 125 |
| His | His | Tyr | Pro | Ser | Ala | Ala | Glu | Arg | Lys | His | Arg | His | Leu | Pro | Val | 130 | 135 | 140 |
| Ala | Asp | Ala | Val | Ile | His | Ala | Ser | Gly | Lys | Gln | Met | Trp | Gln | Ala | Arg | 145 | 150 | 155 |
| Leu | Thr | Val | Ser | Gly | Leu | Ala | Trp | Thr | Arg | Gln | Gln | Asn | Gln | Trp | Lys | 165 | 170 | 175 |
| Glu | Pro | Asp | Val | Tyr | Tyr | Thr | Ser | Ala | Phe | Val | Phe | Pro | Thr | Lys | Asp | 180 | 185 | 190 |
| Val | Ala | Leu | Arg | His | Val | Val | Cys | Ala | His | Glu | Leu | Val | Cys | Ser | Met | 195 | 200 | 205 |
| Glu | Asn | Thr | Arg | Ala | Thr | Lys | Met | Gln | Val | Ile | Gly | Asp | Gln | Tyr | Val | 210 | 215 | 220 |
| Lys | Val | Tyr | Leu | Glu | Ser | Phe | Cys | Glu | Asp | Val | Pro | Ser | Gly | Lys | Leu | 225 | 230 | 235 |
| Phe | Met | His | Val | Thr | Leu | Gly | Ser | Asp | Val | Glu | Glu | Asp | Leu | Thr | Met | 245 | 250 | 255 |
| Thr | Arg | Asn | Pro | Gln | Pro | Phe | Met | Arg | Pro | His | Glu | Arg | Asn | Gly | Phe | 260 | 265 | 270 |
| Thr | Val | Leu | Cys | Pro | Lys | Asn | Met | Ile | Ile | Lys | Pro | Gly | Lys | Ile | Ser | 275 | 280 | 285 |
| His | Ile | Met | Leu | Asp | Val | Ala | Phe | Thr | Ser | His | Glu | His | Phe | Gly | Leu | 290 | 295 | 300 |
| Leu | Cys | Pro | Lys | Ser | Ile | Pro | Gly | Leu | Ser | Ile | Ser | Gly | Asn | Leu | Leu | 305 | 310 | 315 |
| Met | Asn | Gly | Gln | Gln | Ile | Phe | Leu | Glu | Val | Gln | Ala | Ile | Arg | Glu | Thr | 325 | 330 | 335 |
| Val | Glu | Leu | Arg | Gln | Tyr | Asp | Pro | Val | Ala | Ala | Leu | Phe | Phe | Phe | Asp | 340 | 345 | 350 |
| Ile | Asp | Leu | Leu | Leu | Gln | Arg | Gly | Pro | Gln | Tyr | Ser | Glu | His | Pro | Thr | 355 | 360 | 365 |
| Phe | Thr | Ser | Gln | Tyr | Arg | Ile | Gln | Gly | Lys | Leu | Glu | Tyr | Arg | His | Thr | 370 | 375 | 380 |
| Trp | Asp | Arg | His | Asp | Glu | Gly | Ala | Ala | Gln | Gly | Asp | Asp | Asp | Val | Trp | 385 | 390 | 395 |
| Thr | Ser | Gly | Ser | Asp | Ser | Asp | Glu | Glu | Leu | Val | Thr | Thr | Glu | Arg | Lys | 405 | 410 | 415 |
| Thr | Pro | Arg | Val | Thr | Gly | Gly | Gly | Ala | Met | Ala | Gly | Ala | Ser | Thr | Ser | 420 | 425 | 430 |
| Ala | Gly | Arg | Lys | Arg | Lys | Ser | Ala | Ser | Ser | Ala | Thr | Ala | Cys | Thr | Ser | 435 | 440 | 445 |
| Gly | Val | Met | Thr | Arg | Gly | Arg | Leu | Lys | Ala | Glu | Ser | Thr | Val | Ala | Pro | 450 | 455 | 460 |
| Glu | Glu | Asp | Thr | Asp | Glu | Asp | Ser | Asp | Asn | Glu | Ile | His | Asn | Pro | Ala | 465 | 470 | 475 |
| Val | Phe | Thr | Trp | Pro | Pro | Trp | Gln | Ala | Gly | Ile | Leu | Ala | Arg | Asn | Leu | 485 | 490 | 495 |
| Val | Pro | Met | Val | Ala | Thr | Val | Gln | Gly | Gln | Asn | Leu | Lys | Tyr | Gln | Glu | 500 | 505 | 510 |
| Phe | Phe | Trp | Asp | Ala | Asn | Asp | Ile | Tyr | Arg | Ile | Phe | Ala | Glu | Leu | Glu | 515 | 520 | 525 |
| Gly | Val | Trp | Gln | Pro | Ala | Ala | Gln | Pro | Lys | Arg | Arg | Arg | His | Arg | Gln | 530 | 535 | 540 |
| Asp | Ala | Leu | Pro | Gly | Pro | Cys | Ile | Ala | Ser | Thr | Pro | Lys | Lys | His | Arg | 545 | 550 | 555 |
| Gly |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     | 560 |

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 <212> DNA  
 <213> Human cytomegalovirus

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 <221> CDS  
 <222> (1)...(3144)

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 Met Ser Leu Gln Phe Ile Gly Leu Gln Arg Arg Asp Val Val Ala Leu  
 1 5 10 15

gtc aac ttt ctg cgc cat ctc acg caa aag ccc gac gtg gat ctc gag 96  
 Val Asn Phe Leu Arg His Leu Thr Gln Lys Pro Asp Val Asp Leu Glu  
 20 25 30

gca cac ccc aag atc ctg aaa aaa tgt ggc gaa aaa cgc ctg cac cgg 144  
 Ala His Pro Lys Ile Leu Lys Lys Cys Gly Glu Lys Arg Leu His Arg  
 35 40 45

cgt acg gtg ctg ttc aac gag ctc atg ctt tgg ttg gga tac tac cgc 192  
 Arg Thr Val Leu Phe Asn Glu Leu Met Leu Trp Leu Gly Tyr Tyr Arg  
 50 55 60

gag ctg cgt ttt cac aac ccc gac ctc tcc tca gtg ctc gag gag ttc 240  
 Glu Leu Arg Phe His Asn Pro Asp Leu Ser Ser Val Leu Glu Glu Phe  
 65 70 75 80

gag gtg cgt tgc gtg gcc gtg gcg cgt cgc ggc tac act tac ccg ttc 288  
 Glu Val Arg Cys Val Ala Val Ala Arg Arg Gly Tyr Thr Tyr Pro Phe  
 85 90 95

ggt gat cgt ggt aag gcg cgt gac cac ctg gct gtg cta gac cgt acc 336  
 Gly Asp Arg Gly Lys Ala Arg Asp His Leu Ala Val Leu Asp Arg Thr  
 100 105 110

gaa ttc gat acg gac gtg cgc cac gat gcc gag atc gtg gaa cgc gcg 384  
 Glu Phe Asp Thr Asp Val Arg His Asp Ala Glu Ile Val Glu Arg Ala  
 115 120 125

ctc gta agc gcg gtc att ctg gcc aag atg tcg gtg cgc gag acg ctg 432  
 Leu Val Ser Ala Val Ile Leu Ala Lys Met Ser Val Arg Glu Thr Leu  
 130 135 140

gtc aca gcc atc ggc cag acg gaa ccc atc gcc ttt gtg cac ctc aag 480  
 Val Thr Ala Ile Gly Gln Thr Glu Pro Ile Ala Phe Val His Leu Lys  
 145 150 155 160

gat acg gag gtg cag cgc att gaa gaa aac ctg gag ggt gtg cgc cgt 528  
 Asp Thr Glu Val Gln Arg Ile Glu Glu Asn Leu Glu Gly Val Arg Arg  
 165 170 175

aac atg ttc tgc gtg aaa ccg ctc gac ctt aac ctg gac cgg cac gcc 576

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Asn | Met | Phe | Cys | Val | Lys | Pro | Leu | Asp | Leu | Asn | Leu | Asp | Arg | His | Ala |      |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |      |
| aac | acg | gcg | ctg | gtc | aac | gcc | gtc | aac | aag | ctc | gtg | tac | acg | ggc | cgt | 624  |
| Asn | Thr | Ala | Leu | Val | Asn | Ala | Val | Asn | Lys | Leu | Val | Tyr | Thr | Gly | Arg |      |
|     |     | 195 |     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |      |
| ctc | atc | atg | aac | gtg | cgc | agg | tct | tgg | gag | gag | ctg | gag | cgc | aaa | tgt | 672  |
| Leu | Ile | Met | Asn | Val | Arg | Arg | Ser | Trp | Glu | Glu | Leu | Glu | Arg | Lys | Cys |      |
|     | 210 |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |      |
| ctg | gcg | cgc | att | cag | gag | cgc | tgc | aag | ctg | ctg | gtc | aag | gag | ctg | cgc | 720  |
| Leu | Ala | Arg | Ile | Gln | Glu | Arg | Cys | Lys | Leu | Leu | Val | Lys | Glu | Leu | Arg |      |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |      |
| atg | tgc | ctt | tcc | ttt | gat | tcc | aac | tac | tgt | cgc | aat | atc | ctc | aag | cac | 768  |
| Met | Cys | Leu | Ser | Phe | Asp | Ser | Asn | Tyr | Cys | Arg | Asn | Ile | Leu | Lys | His |      |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |      |
| gcc | gtg | gaa | aac | ggc | gac | tcg | gcc | gac | acg | ctg | ttg | gag | ctg | ctc | atc | 816  |
| Ala | Val | Glu | Asn | Gly | Asp | Ser | Ala | Asp | Thr | Leu | Leu | Glu | Leu | Leu | Ile |      |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |      |
| gag | gac | ttt | gat | atc | tac | gtg | gac | agc | ttc | cca | cag | tcg | gcg | cac | acg | 864  |
| Glu | Asp | Phe | Asp | Ile | Tyr | Val | Asp | Ser | Phe | Pro | Gln | Ser | Ala | His | Thr |      |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |      |
| ttt | ttg | ggc | gcg | cgc | tcg | ccg | tcg | ttg | gag | ttt | gac | gat | gac | gcc | aat | 912  |
| Phe | Leu | Gly | Ala | Arg | Ser | Pro | Ser | Leu | Glu | Phe | Asp | Asp | Asp | Ala | Asn |      |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |      |
| ctc | ctc | tcg | ctc | ggc | ggc | ggc | tcg | gcc | ttc | tcg | tcg | gta | ccc | aag | aaa | 960  |
| Leu | Leu | Ser | Leu | Gly | Gly | Gly | Ser | Ala | Phe | Ser | Ser | Val | Pro | Lys | Lys |      |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |      |
| cat | gtc | ccc | acg | cag | ccg | ctg | gac | ggc | tgg | agc | tgg | atc | gcc | agt | ccc | 1008 |
| His | Val | Pro | Thr | Gln | Pro | Leu | Asp | Gly | Trp | Ser | Trp | Ile | Ala | Ser | Pro |      |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |      |
| tgg | aag | gga | cac | aaa | ccg | ttc | cgc | ttc | gag | gcc | cat | ggc | tct | ctg | gca | 1056 |
| Trp | Lys | Gly | His | Lys | Pro | Phe | Arg | Phe | Glu | Ala | His | Gly | Ser | Leu | Ala |      |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |      |
| ccg | gcc | gcc | gaa | gcc | cac | gct | gcc | cgt | tcg | gcg | gcc | gtc | ggc | tat | tac | 1104 |
| Pro | Ala | Ala | Glu | Ala | His | Ala | Ala | Arg | Ser | Ala | Ala | Val | Gly | Tyr | Tyr |      |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |      |
| gac | gaa | gag | gaa | aag | cgt | cgc | gag | cgg | cag | aaa | cgg | gtg | gac | gac | gag | 1152 |
| Asp | Glu | Glu | Glu | Lys | Arg | Arg | Glu | Arg | Gln | Lys | Arg | Val | Asp | Asp | Glu |      |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |      |
| gtg | gtg | cag | cgt | gag | aaa | cag | cag | ctg | aag | gct | tgg | gag | gag | agg | cag | 1200 |
| Val | Val | Gln | Arg | Glu | Lys | Gln | Gln | Leu | Lys | Ala | Trp | Glu | Glu | Arg | Gln |      |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |      |
| cag | aac | ctg | cag | caa | cgt | cag | cag | caa | cca | ccg | ccc | ccg | gca | cgt | aaa | 1248 |
| Gln | Asn | Leu | Gln | Gln | Arg | Gln | Gln | Gln | Pro | Pro | Pro | Pro | Ala | Arg | Lys |      |

| 405 |     |     |     |     |     |     |     | 410 |     |     |     | 415 |     |     |     |      |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| ccg | agc | gcc | tcc | cgg | agg | ctc | ttt | ggc | tcc | agt | gcc | gat | gag | gac | gac | 1296 |
| Pro | Ser | Ala | Ser | Arg | Arg | Leu | Phe | Gly | Ser | Ser | Ala | Asp | Glu | Asp | Asp |      |
| 420 |     |     |     | 425 |     |     |     | 430 |     |     |     |     |     |     |     |      |
| gac | gat | gat | gat | gac | gag | aaa | aac | atc | ttt | acg | ccc | atc | aag | aaa | ccg | 1344 |
| Asp | Asp | Asp | Asp | Asp | Glu | Lys | Asn | Ile | Phe | Thr | Pro | Ile | Lys | Lys | Pro |      |
| 435 |     |     |     | 440 |     |     |     | 445 |     |     |     |     |     |     |     |      |
| gga | act | agc | ggc | aag | ggc | gcc | gct | agt | ggg | ggc | ggg | gtt | tcc | agc | att | 1392 |
| Gly | Thr | Ser | Gly | Lys | Gly | Ala | Ala | Ser | Gly | Gly | Gly | Val | Ser | Ser | Ile |      |
| 450 |     |     |     | 455 |     |     |     | 460 |     |     |     |     |     |     |     |      |
| ttc | agc | ggc | ctg | tta | tcc | tcg | ggc | agt | cag | aaa | ccg | acc | agc | ggg | ccc | 1440 |
| Phe | Ser | Gly | Leu | Leu | Ser | Ser | Gly | Ser | Gln | Lys | Pro | Thr | Ser | Gly | Pro |      |
| 465 |     |     |     | 470 |     |     |     | 475 |     |     |     | 480 |     |     |     |      |
| ttg | aac | atc | ccg | caa | caa | caa | cag | cgt | cac | gcg | gct | ttc | agt | ctc | gtc | 1488 |
| Leu | Asn | Ile | Pro | Gln | Gln | Gln | Gln | Arg | His | Ala | Ala | Phe | Ser | Leu | Val |      |
| 485 |     |     |     | 490 |     |     |     | 495 |     |     |     |     |     |     |     |      |
| tcc | ccg | cag | gtg | acc | aag | gcc | agc | ccg | gga | agg | gtc | cgt | ccg | gac | agc | 1536 |
| Ser | Pro | Gln | Val | Thr | Lys | Ala | Ser | Pro | Gly | Arg | Val | Arg | Arg | Asp | Ser |      |
| 500 |     |     |     | 505 |     |     |     | 510 |     |     |     |     |     |     |     |      |
| gcg | tgg | gac | gtg | agg | ccg | ctc | acg | gag | acc | aga | ggg | gat | ctt | ttc | tcg | 1584 |
| Ala | Trp | Asp | Val | Arg | Pro | Leu | Thr | Glu | Thr | Arg | Gly | Asp | Leu | Phe | Ser |      |
| 515 |     |     |     | 520 |     |     |     | 525 |     |     |     |     |     |     |     |      |
| ggc | gac | gag | gat | tcc | gac | agc | tcg | gat | ggc | tat | ccc | ccc | aac | cgt | caa | 1632 |
| Gly | Asp | Glu | Asp | Ser | Asp | Ser | Ser | Asp | Gly | Tyr | Pro | Pro | Asn | Arg | Gln |      |
| 530 |     |     |     | 535 |     |     |     | 540 |     |     |     |     |     |     |     |      |
| gat | ccg | cgt | ttc | acc | gac | acg | ctg | gtg | gac | atc | acg | gat | acc | gag | acg | 1680 |
| Asp | Pro | Arg | Phe | Thr | Asp | Thr | Leu | Val | Asp | Ile | Thr | Asp | Thr | Glu | Thr |      |
| 545 |     |     |     | 550 |     |     |     | 555 |     |     |     | 560 |     |     |     |      |
| agc | gcc | aaa | ccg | ccc | gtc | acc | acc | gcg | tac | aag | ttc | gag | caa | ccg | acg | 1728 |
| Ser | Ala | Lys | Pro | Pro | Val | Thr | Thr | Ala | Tyr | Lys | Phe | Glu | Gln | Pro | Thr |      |
| 565 |     |     |     | 570 |     |     |     | 575 |     |     |     |     |     |     |     |      |
| ttg | acg | ttc | ggc | gcc | gga | gtt | aac | gtt | cct | gct | ggc | gcc | ggc | gct | gcc | 1776 |
| Leu | Thr | Phe | Gly | Ala | Gly | Val | Asn | Val | Pro | Ala | Gly | Ala | Gly | Ala | Ala |      |
| 580 |     |     |     | 585 |     |     |     | 590 |     |     |     |     |     |     |     |      |
| atc | ctc | acg | ccg | acg | cct | gtc | aat | cct | tcc | acg | gcc | ccc | gct | ccg | gcc | 1824 |
| Ile | Leu | Thr | Pro | Thr | Pro | Val | Asn | Pro | Ser | Thr | Ala | Pro | Ala | Pro | Ala |      |
| 595 |     |     |     | 600 |     |     |     | 605 |     |     |     |     |     |     |     |      |
| ccg | aca | cct | acc | ttc | gcg | ggg | acc | caa | acc | ccg | gtc | aac | ggg | aac | tcg | 1872 |
| Pro | Thr | Pro | Thr | Phe | Ala | Gly | Thr | Gln | Thr | Pro | Val | Asn | Gly | Asn | Ser |      |
| 610 |     |     |     | 615 |     |     |     | 620 |     |     |     |     |     |     |     |      |
| ccc | tgg | gct | ccg | acg | gcg | ccg | ttg | ccc | ggg | gat | atg | aac | ccc | gcc | aac | 1920 |
| Pro | Trp | Ala | Pro | Thr | Ala | Pro | Leu | Pro | Gly | Asp | Met | Asn | Pro | Ala | Asn |      |
| 625 |     |     |     | 630 |     |     |     | 635 |     |     |     | 640 |     |     |     |      |

|   |      |
|---|------|
| tgg ccg cgc gaa cgc gcg tgg gcc ctc aag aat cct cac ctg gct tac | 1968 |
| Trp Pro Arg Glu Arg Ala Trp Ala Leu Lys Asn Pro His Leu Ala Tyr |      |
| 645 650 655   |      |
| aat ccc ttc agg atg cct acg act tcc acg gct tct caa aac acc gtg | 2016 |
| Asn Pro Phe Arg Met Pro Thr Thr Ser Thr Ala Ser Gln Asn Thr Val |      |
| 660 665 670   |      |
| tcc acc acc cct cgg agg ccg tcg act cca cgc gcc gcg gtg aca caa | 2064 |
| Ser Thr Thr Pro Arg Arg Pro Ser Thr Pro Arg Ala Ala Val Thr Gln |      |
| 675 680 685   |      |
| aca gcg tct cgg gac gcc gct gat gag gtt tgg gct tta agg gac caa | 2112 |
| Thr Ala Ser Arg Asp Ala Ala Asp Glu Val Trp Ala Leu Arg Asp Gln |      |
| 690 695 700   |      |
| act gca gag tca ccg gtc gaa gac agc gag gag gaa gac gac gac tcc | 2160 |
| Thr Ala Glu Ser Pro Val Glu Asp Ser Glu Glu Glu Asp Asp Asp Ser |      |
| 705 710 715 720   |      |
| tcg gac acc ggc tcc gtc gtc agc ctg gga cac aca aca ccg tcg tcc | 2208 |
| Ser Asp Thr Gly Ser Val Val Ser Leu Gly His Thr Thr Pro Ser Ser |      |
| 725 730 735   |      |
| gat tac aac aac gac gtc att tcg cct ccc agt cag acg ccc gag cag | 2256 |
| Asp Tyr Asn Asn Asp Val Ile Ser Pro Pro Ser Gln Thr Pro Glu Gln |      |
| 740 745 750   |      |
| tcg acg ccg tcc aga ata cgt aaa gct aag tta tcg tct cca atg acg | 2304 |
| Ser Thr Pro Ser Arg Ile Arg Lys Ala Lys Leu Ser Ser Pro Met Thr |      |
| 755 760 765   |      |
| acg aca tcc acg agc cag aaa ccg gtg ctg ggc aag cga gtc gcg acg | 2352 |
| Thr Thr Ser Thr Ser Gln Lys Pro Val Leu Gly Lys Arg Val Ala Thr |      |
| 770 775 780   |      |
| ccg cac gcg tcc gcc cga gcg cag acg gtg acg tcg acg ccg gtt cag | 2400 |
| Pro His Ala Ser Ala Arg Ala Gln Thr Val Thr Ser Thr Pro Val Gln |      |
| 785 790 795 800   |      |
| gga agg cta gag aaa cag gtg tcg ggc acg ccg tcg acg gta ccc gcc | 2448 |
| Gly Arg Leu Glu Lys Gln Val Ser Gly Thr Pro Ser Thr Val Pro Ala |      |
| 805 810 815   |      |
| acg ctg ttg caa cct caa ccg gct tcg tct aaa acg acg tca tca agg | 2496 |
| Thr Leu Leu Gln Pro Gln Pro Ala Ser Ser Lys Thr Thr Ser Ser Arg |      |
| 820 825 830   |      |
| aac gtg act tct ggc gcg gga acc tct tcc gct tct tcg gct cga cag | 2544 |
| Asn Val Thr Ser Gly Ala Gly Thr Ser Ser Ala Ser Ser Ala Arg Gln |      |
| 835 840 845   |      |
| ccg tca gcc tcg gcg tcc gtt ttg tcg ccc acg gag gat gat gtc gtg | 2592 |
| Pro Ser Ala Ser Ala Ser Val Leu Ser Pro Thr Glu Asp Asp Val Val |      |
| 850 855 860   |      |

|   |      |
|---|------|
| tcc ccc gcc aca tcg ccg ctg tcc atg ctt tcg tca gcc tct ccg tcc<br>Ser Pro Ala Thr Ser Pro Leu Ser Met Leu Ser Ser Ala Ser Pro Ser<br>865 870 875 880     | 2640 |
| ccg gcc aag agt gcc ccc ccg tct ccg gtg aaa ggc cgg ggc agc cgc<br>Pro Ala Lys Ser Ala Pro Pro Ser Pro Val Lys Gly Arg Gly Ser Arg<br>885 890 895         | 2688 |
| gtc ggt gtt cct tcc ttg aaa cct act ttg ggc ggc aag gcg gtg gta<br>Val Gly Val Pro Ser Leu Lys Pro Thr Leu Gly Gly Lys Ala Val Val<br>900 905 910         | 2736 |
| ggt cga ccg ccc tcg gtc ccc gtg agc ggt agc gcg ccg ggt cgc ctg<br>Gly Arg Pro Pro Ser Val Pro Val Ser Gly Ser Ala Pro Gly Arg Leu<br>915 920 925         | 2784 |
| tcc ggc agc agc cgg gcc gcc tcg acc acg ccg acg tat ccc gcg gta<br>Ser Gly Ser Ser Arg Ala Ala Ser Thr Thr Pro Thr Tyr Pro Ala Val<br>930 935 940         | 2832 |
| acc acc gtt tac cca ccg tcg tct acg gcc aaa agc agc gta tcg aat<br>Thr Thr Val Tyr Pro Pro Ser Ser Thr Ala Lys Ser Ser Val Ser Asn<br>945 950 955 960     | 2880 |
| gcg ccg cct gtg gcc tcc ccc tcc atc ctg aaa ccg ggg gcg agc gcg<br>Ala Pro Pro Val Ala Ser Pro Ser Ile Leu Lys Pro Gly Ala Ser Ala<br>965 970 975         | 2928 |
| gct ttg caa tca cgc cgc tcg acg ggg acc gcc gcc gta ggt tcc ccc<br>Ala Leu Gln Ser Arg Arg Ser Thr Gly Thr Ala Ala Val Gly Ser Pro<br>980 985 990         | 2976 |
| gtc aag agc acg acg ggc atg aaa acg gtg gct ttc gac cta tcg tcg<br>Val Lys Ser Thr Thr Gly Met Lys Thr Val Ala Phe Asp Leu Ser Ser<br>995 1000 1005       | 3024 |
| ccc cag aag agc ggt acg ggg ccg caa ccg ggt tct gcc ggc atg ggg<br>Pro Gln Lys Ser Gly Thr Gly Pro Gln Pro Gly Ser Ala Gly Met Gly<br>1010 1015 1020      | 3072 |
| ggc gcc aaa acg ccg tcg gac gcc gtg cag aac atc ctc caa aag atc<br>Gly Ala Lys Thr Pro Ser Asp Ala Val Gln Asn Ile Leu Gln Lys Ile<br>1025 1030 1035 1040 | 3120 |
| gag aag att aag aac acg gag gaa tag<br>Glu Lys Ile Lys Asn Thr Glu Glu<br>1045  | 3147 |

&lt;210&gt; 16

&lt;211&gt; 1048

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&lt;213&gt; Human cytomegalovirus

&lt;400&gt; 16

|   |
|---|
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| 1 5 10 15   |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asn | Phe | Leu | Arg | His | Leu | Thr | Gln | Lys | Pro | Asp | Val | Asp | Leu | Glu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |     |
| Ala | His | Pro | Lys | Ile | Leu | Lys | Lys | Cys | Gly | Glu | Lys | Arg | Leu | His | Arg |
|     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |
| Arg | Thr | Val | Leu | Phe | Asn | Glu | Leu | Met | Leu | Trp | Leu | Gly | Tyr | Tyr | Arg |
|     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |     |     |     |     |
| Glu | Leu | Arg | Phe | His | Asn | Pro | Asp | Leu | Ser | Ser | Val | Leu | Glu | Glu | Phe |
| 65  |     |     |     |     | 70  |     |     |     |     | 75  |     |     |     |     | 80  |
| Glu | Val | Arg | Cys | Val | Ala | Val | Ala | Arg | Arg | Gly | Tyr | Thr | Tyr | Pro | Phe |
|     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |     | 95  |     |
| Gly | Asp | Arg | Gly | Lys | Ala | Arg | Asp | His | Leu | Ala | Val | Leu | Asp | Arg | Thr |
|     |     |     | 100 |     |     |     |     | 105 |     |     |     |     | 110 |     |     |
| Glu | Phe | Asp | Thr | Asp | Val | Arg | His | Asp | Ala | Glu | Ile | Val | Glu | Arg | Ala |
|     |     | 115 |     |     |     |     | 120 |     |     |     |     | 125 |     |     |     |
| Leu | Val | Ser | Ala | Val | Ile | Leu | Ala | Lys | Met | Ser | Val | Arg | Glu | Thr | Leu |
|     | 130 |     |     |     |     | 135 |     |     |     |     | 140 |     |     |     |     |
| Val | Thr | Ala | Ile | Gly | Gln | Thr | Glu | Pro | Ile | Ala | Phe | Val | His | Leu | Lys |
| 145 |     |     |     |     | 150 |     |     |     |     | 155 |     |     |     |     | 160 |
| Asp | Thr | Glu | Val | Gln | Arg | Ile | Glu | Glu | Asn | Leu | Glu | Gly | Val | Arg | Arg |
|     |     |     |     | 165 |     |     |     |     | 170 |     |     |     |     | 175 |     |
| Asn | Met | Phe | Cys | Val | Lys | Pro | Leu | Asp | Leu | Asn | Leu | Asp | Arg | His | Ala |
|     |     |     | 180 |     |     |     |     | 185 |     |     |     |     | 190 |     |     |
| Asn | Thr | Ala | Leu | Val | Asn | Ala | Val | Asn | Lys | Leu | Val | Tyr | Thr | Gly | Arg |
|     | 195 |     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     |
| Leu | Ile | Met | Asn | Val | Arg | Arg | Ser | Trp | Glu | Glu | Leu | Glu | Arg | Lys | Cys |
| 210 |     |     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |
| Leu | Ala | Arg | Ile | Gln | Glu | Arg | Cys | Lys | Leu | Leu | Val | Lys | Glu | Leu | Arg |
| 225 |     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Met | Cys | Leu | Ser | Phe | Asp | Ser | Asn | Tyr | Cys | Arg | Asn | Ile | Leu | Lys | His |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |     |
| Ala | Val | Glu | Asn | Gly | Asp | Ser | Ala | Asp | Thr | Leu | Leu | Glu | Leu | Leu | Ile |
|     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |     |     |
| Glu | Asp | Phe | Asp | Ile | Tyr | Val | Asp | Ser | Phe | Pro | Gln | Ser | Ala | His | Thr |
|     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |     |     |     |
| Phe | Leu | Gly | Ala | Arg | Ser | Pro | Ser | Leu | Glu | Phe | Asp | Asp | Asp | Ala | Asn |
|     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |     |     |     |     |
| Leu | Leu | Ser | Leu | Gly | Gly | Gly | Ser | Ala | Phe | Ser | Ser | Val | Pro | Lys | Lys |
| 305 |     |     |     |     | 310 |     |     |     |     | 315 |     |     |     |     | 320 |
| His | Val | Pro | Thr | Gln | Pro | Leu | Asp | Gly | Trp | Ser | Trp | Ile | Ala | Ser | Pro |
|     |     |     |     | 325 |     |     |     |     | 330 |     |     |     |     | 335 |     |
| Trp | Lys | Gly | His | Lys | Pro | Phe | Arg | Phe | Glu | Ala | His | Gly | Ser | Leu | Ala |
|     |     |     | 340 |     |     |     |     | 345 |     |     |     |     | 350 |     |     |
| Pro | Ala | Ala | Glu | Ala | His | Ala | Ala | Arg | Ser | Ala | Ala | Val | Gly | Tyr | Tyr |
|     |     | 355 |     |     |     |     | 360 |     |     |     |     | 365 |     |     |     |
| Asp | Glu | Glu | Glu | Lys | Arg | Arg | Glu | Arg | Gln | Lys | Arg | Val | Asp | Asp | Glu |
|     | 370 |     |     |     |     | 375 |     |     |     |     | 380 |     |     |     |     |
| Val | Val | Gln | Arg | Glu | Lys | Gln | Gln | Leu | Lys | Ala | Trp | Glu | Glu | Arg | Gln |
| 385 |     |     |     |     | 390 |     |     |     |     | 395 |     |     |     |     | 400 |
| Gln | Asn | Leu | Gln | Gln | Arg | Gln | Gln | Gln | Pro | Pro | Pro | Pro | Ala | Arg | Lys |
|     |     |     |     | 405 |     |     |     |     | 410 |     |     |     |     | 415 |     |
| Pro | Ser | Ala | Ser | Arg | Arg | Leu | Phe | Gly | Ser | Ser | Ala | Asp | Glu | Asp | Asp |
|     |     |     | 420 |     |     |     |     | 425 |     |     |     |     | 430 |     |     |
| Asp | Asp | Asp | Asp | Asp | Glu | Lys | Asn | Ile | Phe | Thr | Pro | Ile | Lys | Lys | Pro |
|     |     | 435 |     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |
| Gly | Thr | Ser | Gly | Lys | Gly | Ala | Ala | Ser | Gly | Gly | Gly | Val | Ser | Ser | Ile |
|     | 450 |     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     |
| Phe | Ser | Gly | Leu | Leu | Ser | Ser | Gly | Ser | Gln | Lys | Pro | Thr | Ser | Gly | Pro |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 465 |     |     |     |     | 470 |     |     |     |     | 475 |     |     |     | 480 |     |
| Leu | Asn | Ile | Pro | Gln | Gln | Gln | Gln | Arg | His | Ala | Ala | Phe | Ser | Leu | Val |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |     |
| Ser | Pro | Gln | Val | Thr | Lys | Ala | Ser | Pro | Gly | Arg | Val | Arg | Arg | Asp | Ser |
|     |     |     | 500 |     |     |     |     | 505 |     |     |     |     |     | 510 |     |
| Ala | Trp | Asp | Val | Arg | Pro | Leu | Thr | Glu | Thr | Arg | Gly | Asp | Leu | Phe | Ser |
|     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |     |     |     |
| Gly | Asp | Glu | Asp | Ser | Asp | Ser | Ser | Asp | Gly | Tyr | Pro | Pro | Asn | Arg | Gln |
|     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |     |     |     |     |
| Asp | Pro | Arg | Phe | Thr | Asp | Thr | Leu | Val | Asp | Ile | Thr | Asp | Thr | Glu | Thr |
| 545 |     |     |     |     | 550 |     |     |     |     | 555 |     |     |     |     | 560 |
| Ser | Ala | Lys | Pro | Pro | Val | Thr | Thr | Ala | Tyr | Lys | Phe | Glu | Gln | Pro | Thr |
|     |     |     | 565 |     |     |     |     |     | 570 |     |     |     |     | 575 |     |
| Leu | Thr | Phe | Gly | Ala | Gly | Val | Asn | Val | Pro | Ala | Gly | Ala | Gly | Ala | Ala |
|     |     |     | 580 |     |     |     |     | 585 |     |     |     |     | 590 |     |     |
| Ile | Leu | Thr | Pro | Thr | Pro | Val | Asn | Pro | Ser | Thr | Ala | Pro | Ala | Pro | Ala |
|     |     | 595 |     |     |     |     | 600 |     |     |     |     | 605 |     |     |     |
| Pro | Thr | Pro | Thr | Phe | Ala | Gly | Thr | Gln | Thr | Pro | Val | Asn | Gly | Asn | Ser |
|     | 610 |     |     |     |     | 615 |     |     |     |     | 620 |     |     |     |     |
| Pro | Trp | Ala | Pro | Thr | Ala | Pro | Leu | Pro | Gly | Asp | Met | Asn | Pro | Ala | Asn |
| 625 |     |     |     |     | 630 |     |     |     |     | 635 |     |     |     |     | 640 |
| Trp | Pro | Arg | Glu | Arg | Ala | Trp | Ala | Leu | Lys | Asn | Pro | His | Leu | Ala | Tyr |
|     |     |     | 645 |     |     |     |     |     | 650 |     |     |     |     | 655 |     |
| Asn | Pro | Phe | Arg | Met | Pro | Thr | Thr | Ser | Thr | Ala | Ser | Gln | Asn | Thr | Val |
|     |     | 660 |     |     |     |     |     | 665 |     |     |     |     | 670 |     |     |
| Ser | Thr | Thr | Pro | Arg | Arg | Pro | Ser | Thr | Pro | Arg | Ala | Ala | Val | Thr | Gln |
|     |     | 675 |     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |
| Thr | Ala | Ser | Arg | Asp | Ala | Ala | Asp | Glu | Val | Trp | Ala | Leu | Arg | Asp | Gln |
|     | 690 |     |     |     |     | 695 |     |     |     | 700 |     |     |     |     |     |
| Thr | Ala | Glu | Ser | Pro | Val | Glu | Asp | Ser | Glu | Glu | Glu | Asp | Asp | Asp | Ser |
| 705 |     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |
| Ser | Asp | Thr | Gly | Ser | Val | Val | Ser | Leu | Gly | His | Thr | Thr | Pro | Ser | Ser |
|     |     |     | 725 |     |     |     |     |     | 730 |     |     |     |     | 735 |     |
| Asp | Tyr | Asn | Asn | Asp | Val | Ile | Ser | Pro | Pro | Ser | Gln | Thr | Pro | Glu | Gln |
|     |     | 740 |     |     |     |     | 745 |     |     |     |     |     | 750 |     |     |
| Ser | Thr | Pro | Ser | Arg | Ile | Arg | Lys | Ala | Lys | Leu | Ser | Ser | Pro | Met | Thr |
|     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |     |     |     |
| Thr | Thr | Ser | Thr | Ser | Gln | Lys | Pro | Val | Leu | Gly | Lys | Arg | Val | Ala | Thr |
|     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |     |     |     |     |
| Pro | His | Ala | Ser | Ala | Arg | Ala | Gln | Thr | Val | Thr | Ser | Thr | Pro | Val | Gln |
| 785 |     |     |     |     | 790 |     |     |     |     | 795 |     |     |     |     | 800 |
| Gly | Arg | Leu | Glu | Lys | Gln | Val | Ser | Gly | Thr | Pro | Ser | Thr | Val | Pro | Ala |
|     |     |     | 805 |     |     |     |     |     | 810 |     |     |     |     | 815 |     |
| Thr | Leu | Leu | Gln | Pro | Gln | Pro | Ala | Ser | Ser | Lys | Thr | Thr | Ser | Ser | Arg |
|     |     |     | 820 |     |     |     |     | 825 |     |     |     |     | 830 |     |     |
| Asn | Val | Thr | Ser | Gly | Ala | Gly | Thr | Ser | Ser | Ala | Ser | Ser | Ala | Arg | Gln |
|     |     | 835 |     |     |     |     | 840 |     |     |     |     | 845 |     |     |     |
| Pro | Ser | Ala | Ser | Ala | Ser | Val | Leu | Ser | Pro | Thr | Glu | Asp | Asp | Val | Val |
|     | 850 |     |     |     |     | 855 |     |     |     |     | 860 |     |     |     |     |
| Ser | Pro | Ala | Thr | Ser | Pro | Leu | Ser | Met | Leu | Ser | Ser | Ala | Ser | Pro | Ser |
| 865 |     |     |     |     | 870 |     |     |     |     | 875 |     |     |     |     | 880 |
| Pro | Ala | Lys | Ser | Ala | Pro | Pro | Ser | Pro | Val | Lys | Gly | Arg | Gly | Ser | Arg |
|     |     |     | 885 |     |     |     |     |     | 890 |     |     |     |     | 895 |     |
| Val | Gly | Val | Pro | Ser | Leu | Lys | Pro | Thr | Leu | Gly | Gly | Lys | Ala | Val | Val |
|     |     | 900 |     |     |     |     |     | 905 |     |     |     |     | 910 |     |     |
| Gly | Arg | Pro | Pro | Ser | Val | Pro | Val | Ser | Gly | Ser | Ala | Pro | Gly | Arg | Leu |
|     |     | 915 |     |     |     |     | 920 |     |     |     |     | 925 |     |     |     |

[illegible]